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Original Articles

A LARGE CYSTIC TUMOR DEVELOPING FROM THE ILIOPSOAS BURSA

CONTAINING LARGE FREE CARTILAGINOUS MASSES, AND COMMUNICATING WITH THE HIP-JOINT

THOMAS S. CULLEN

BALTIMORE

History.—In November, 1908, I was asked by Dr. A. H. A. Mayer to examine a man aged 46 who had what appeared to be a very unusual pelvic tumor. About ten years before the patient had begun to limp, and a year later consulted a physician who told him that he had a tumor of the left hip. The condition gradually had become worse. For about a year the man had noticed that every time he put his weight on his left leg "something slipped" in his hip.

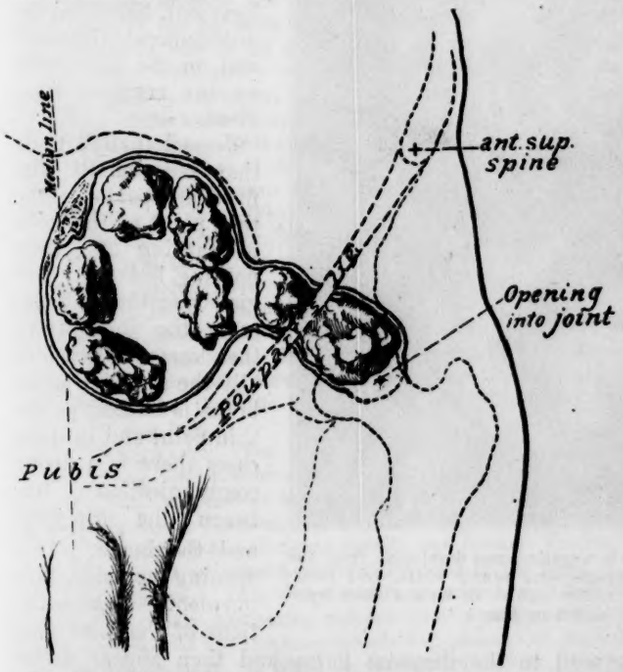


Fig. 1.—A cystic tumor developing from the left iliopsoas bursa containing large free cartilaginous masses and communicating with the hip-joint. Occupying the left half of the pelvis is a cystic tumor which on its outer side was firmly attached to the pelvic wall. The cyst walls were composed chiefly of fibrous tissue. The thickening in certain areas noted in the walls is due to deposits of bone. The cyst cavity was distended with clear yellowish, tenacious fluid and also contained five free and irregular cartilaginous masses. A narrow prolongation of the cyst passed downward and forward beneath Poupart's ligament and opened directly into the hip-joint. Filling this portion of the cyst was a large free cartilaginous mass. All the cartilaginous masses are shown in their natural size in Fig. 3.

Examination.—The patient was a tall, rather anemic looking man. The chest sounds were normal. The left leg was stiff and when walking he held the left hip-joint as immobile as possible. Occupying the left iliac fossa and extending beyond the median line was a firm oval mass, 8 by 10 cm. This was continuous with a smaller mass which passed below Poupart's ligament and extended to the left of the hip-joint anteriorly. The large mass seemed to fill the left half of the pelvis. In some places it appeared to consist of bone, but at other points felt cystic. It seemed to be intimately connected with the pelvic bone. The glands in both groins were palpable. The left leg was three-quarters of an inch shorter than the right. On flexion of the leg the pelvic mass receded somewhat, but on extension the tumor again became prominent. Flexion, extension, adduction and abduction were accompanied by dull crepitation in or near the hip-joint. On carefully questioning the patient it was learned that the swelling had been first noticed just below Poupart's ligament.

Operation.—An incision was made just above and parallel with Poupart's ligament and the extraperitoneal tumor exposed. After displacing the anterior crural nerve, which was markedly stretched over the tumor, and splitting the muscle which lay over it, it was found necessary to sever Poupart's ligament as a portion of the tumor lay beneath it. The pelvic portion of the mass was loosened up easily on its anterior and posterior aspects, but on the outer side was firmly attached to

Fig. 2.—Part of the sac of a cystic tumor developing from the iliopsoas bursa. The picture represents the inner surface of the cyst. The walls vary from 1 to 2 mm. in thickness and in them are seen cross sections of plaques of bone. In other portions of the walls cartilage was noted. The inner surface presented a distinctly trabeculated appearance evidently due to the uneven stretching of the sac. Projecting into the cavity is an irregular bony mass fully 3 cm. in diameter. The sac was lined with a smooth glistening membrane; it contained clear yellow tenacious fluid and the six cartilaginous masses depicted in Fig. 3.

the ileum, and below seemed intimately related to the anterior portion of the hip-joint. After being walled off with gauze it was opened and there was an escape of clear viscid fluid, yellowish in color. Lying free in the cavity were five irregularly lobulated, hard cartilaginous masses (Figs. 1, 3). After these had been removed a sixth was found fastened down beneath Poupart's ligament. When this nodule had been taken out a finger carried downward and forward passed directly into the hip joint anterior to the head of the femur. The bones of the joint were perfectly smooth. The pelvic sac was gradually dissected free at a point considerably below Poupart's ligament. It was then cut away and the remaining portion which formed the margin of the entrance into the joint was trimmed, turned in on itself, and snugly brought together with catgut sutures, thus securely closing the hip-joint. A small drain was laid in the upper angle of the wound far removed from the joint and the incision closed.

Result. — For a few days the patient did remarkably well but then became delirious and talked incoherently. It was learned that on a previous occasion he had shown similar cerebral disturbances and that it had been necessary to confine him for a time in a sanitarium. Dr. Henry J. Berkley, who saw him in consultation, felt that his mental condition had nothing to do with the operation. The wound after draining for a few days closed completely and the patient left the hospital in excellent physical and mental condition five and a half weeks afterward. He was able to walk without much difficulty.

Subsequent History.— Dec. 6, 1909: Dr. Mayer informs me that the patient occasionally has some discomfort in his leg but no pain in hip-joint. He still uses a cane.

Description of Specimen.—The walls of the sac were composed of fibrous tissue and scattered throughout them were plaques of cartilage and definite bony masses (Figs. 1, 2). Some of these fragments of bone were very small; others reached 3 cm. or more in diameter. The inner surface of the sac presented a trabeculated appearance (Fig. 2) evidently due to the unequal and gradual distention of the cystic tumor. Notwithstanding the uneven appearance the inner surface was everywhere covered by a smooth membrane. The fluid contents were clear, yellowish in color and rather sticky. The six irregular, white, cartilaginous masses filling the cavity are shown in their natural size in Figure 3. They were lying perfectly free and five of them popped out as soon as the sac was opened. The sixth could not escape as it was firmly held down by Poupart's ligament and its lower end entered the hip-joint.[1]

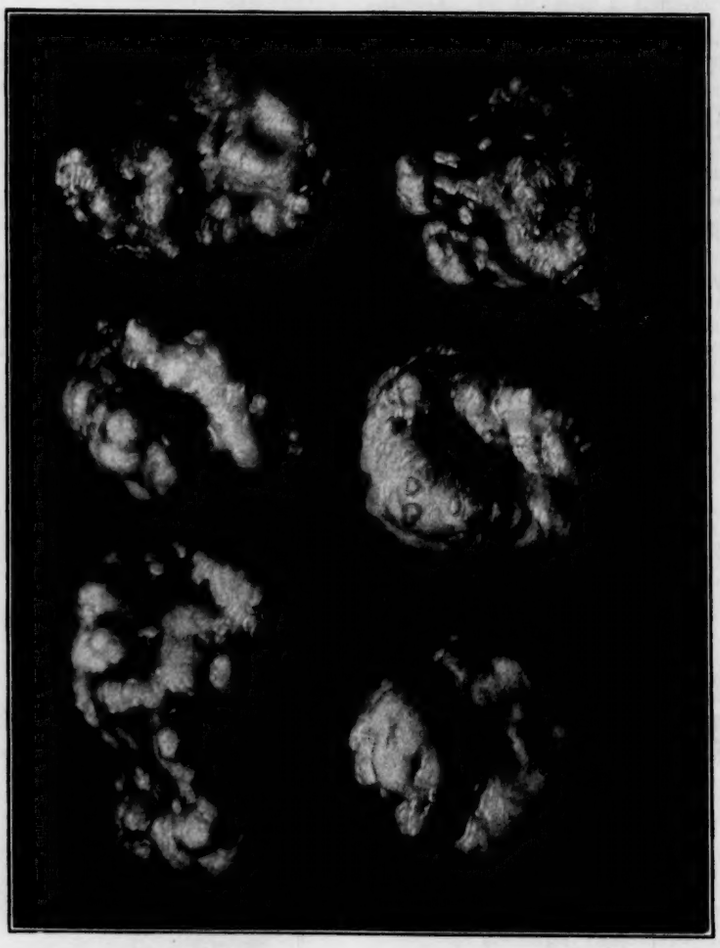


Fig. 3.—Cartilaginous masses lying free in a cystic tumor developing from the iliopsoas bursa (natural size). These masses were pearly white, very irregular, but perfectly smooth. They were rather lighter in weight than bone. Their general arrangement in the cyst is shown in Fig. 1.

1. The specimens were demonstrated to the class and then drawn. During my absence in Europe they were unfortunately mislaid and have not yet been located; consequently I have thus far been unable to make a careful histologic examination to determine definitely whether the central portion of the cartilaginous masses contained bone or not.

ORIGIN OF THESE CYSTIC TUMORS

One of the largest, if not the largest, bursa in the body is that situated beneath the tendon of the iliopsoas muscle. This complex muscle arises from the body of the twelfth dorsal vertebra, from the bodies of all the lumbar vertebræ, from the transverse processes of all the lumbar vertebræ and from the iliac fossa. The combined tendon is inserted in the trochanter minor. In order to reach this the iliopsoas muscle must curve around the crest of the ilium. It is beneath the muscle where it curves over the bone that the bursa is found. It lies beneath Poupart's ligament below and lateral to the iliopectineal eminence. According to some authors it may attain the size of a hen's egg.

According to Joessel[2] the iliopsoas bursa or the bursa mucosa subiliaca lies between the partly tendinous portion of the iliac muscle and the front of the iliopectineal eminence. Anteriorly, it is firmly attached to the iliopsoas muscle, posteriorly to the iliopectineal eminence, and likewise to the thin portion of the capsule of the hip-joint.[3] It is bounded on the outer side by the iliofemoral ligament, below by the pubofemoral ligament and on the inner side by the cotyloid ligament.

Joessel further finds that occasionally the fibrous capsule at the thin point of the joint is wanting and then nothing but the synovial membrane separates the joint from the bursa. Occasionally the synovial membrane is lacking at the thin point and in these cases there is a direct communication between the hip-joint and the bursa. This opening explains how purulent accumulations of the joint may extend to the iliopsoas bursa and then appear under the iliopsoas muscle and also how psoas abscesses may travel down the muscle and eventually cause involvement of the hip-joint. An extended consideration of the subject would necessitate a discussion of practically all diseases of the hip and would naturally lead us too far afield. I shall consequently limit my remarks chiefly to those cases in which cystic tumors similar to this have been noted and in which little or no evidence of inflammation has existed.

2. Topographisch-Chirurgische Anatomie, I, 169.
3. This thin spot is well seen in Figure 232 of Cunningham's Anatomy, 1909, p. 296.

When consulting the literature I found a most instructive and painstaking article on "Diseases of the Bursæ of the Hip" by R. Zuelzer.[4] I have examined in the original the references given by this author and have found them in the main so well epitomized that I shall draw largely on his descriptions and conclusions.

It has been noted that the bursæ that are regularly found are usually developed during fetal life, while the less constant ones appear at a later date. Virchow and Schuchardt found that the small subcutaneous bursæ developed out of a connective-tissue network resembling cavernous tissue. Eventually a cavity was formed in which as a result of the continuous movements and rubbing the connective tissue gradually atrophied. The walls of these bursæ consist of dense connective tissue and contain a very little elastic tissue. The inner surface is lined with one layer of so-called endothelium and the contents of the bursa resemble those of the joint. They are slightly tenacious, thick and usually just enough in amount to keep the walls of the sac smooth.[5]

CASES OF CYSTIC DEVELOPMENT OF THE ILIOPSOAS BURSA AS COLLECTED BY ZUELZER

HOFFA: The patient, a workman, was struck on the right foot and the left arm. He walked home at once a distance of about two miles, remained without treatment for fourteen days and again went to work. A year later he complained of pain in the region of the right hip. On examination the leg was found slightly flexed, abducted and rotated outward. At the hip was a painful tumor which was clearly visible and palpable; it lay under Poupart's ligament between the psoas and the pectineus muscles and was of the consistence of bone. On flexion of the leg, however, fluctuation could be detected. The trochanter was in its normal position and movements of the hip-joint were easily made. Adduction, flexion and rotation inward were, however, somewhat limited. The pain extended down to the knee. The corresponding leg was somewhat thinner than the other. This case was diagnosed by a colleague as an impacted fracture of the neck of the femur and the tumor was thought to be a callus formation pressing on the crural nerve and causing pain. There was no shortening of the leg.

EHRLE: A cooper, aged 33, for thirteen years had suffered with pain in the leg and down its inner side. Four months before coming under observation he noticed a tumor situated slightly below Poupart's ligament. This was ovoid in shape and lay under the large vessels. On extension of the leg the tumor became hard. On flexion fluid could be detected. Extension and rotation outward produced pain. By flexion it was clearly seen that the psoas muscle was lifted up. The hip-joint was free.

HERDTMANN: The patient had been squeezed between two cars, the chief pressure coming on the left hip. The patient was carefully watched as he was supposed to be a malingerer. On examination, however, a painful swelling of the bursa beneath the tendon of the iliopsoas muscle was found. Flexion of the leg or rotation inward caused much pain in the joint.

MOMMSEN: This surgeon saw a patient who had an elevated, clearly fluctuating painless tumor which projected from the region of the iliopsoas muscle and passed out beneath Poupart's ligament. It lifted up the femoral artery. On pressure the tumor diminished in size.

MOMMSEN: The same author reported a case of a man 50 years old who without apparent trauma complained of difficulty in walking on account of a gradually increasing swelling in the right inguinal region. The tumor was as large as two fists and was situated deep in the right iliac fossa. It was firm in consistency and only slightly movable. It was thought to be a sarcoma of the fascia of the hip. At operation its lower pole was found firmly attached to the joint capsule. The cyst walls varied from 3 to 5 mm. in thickness and the failure to detect fluctuation was due to over-distention of the cyst.

SCHÄFER: The patient, a man coming to Volkmann's clinic, complained of a tumor the size of a child's head situated at the flexion of the thigh and lying under Poupart's ligament. The man had fallen and injured his hip a year and a half before. The tumor projected only slightly above the normal skin surface. It was buried deeply in the muscle of the thigh, was elongate oval and followed the long axis of the psoas muscle. The thigh was markedly flexed. When the leg was extended the tissue was of stony hardness. With extensive flexion some fluctuation could be detected. A second tumor the size of an apple was present at the edge of the gluteus maximus. This tumor also on extension was tense, but on flexion of the hip it became softer. Its contents could be made to disappear and as a result the anterior tumor became more distended. The cystic tumors communicated with one another. The movement of the hip joint was free. The pain radiated from the hip to the knee.

FRICKE: This author described a case of a carter who without apparent cause had a tumor in the hip region. It lay over the right trochanter and passed inward under Poupart's ligament and extended downward over the upper third of the thigh. It really formed three tumors. The outer portion was as large as a child's head and markedly distended. The second lay on the inner side of the thigh and the third, the smallest, lay between them. All three fluctuated and the fluid could be pressed from one tumor into the other. The position of the thigh was normal but movement of the hip was impossible on account of the severe pain which was caused especially by flexion and rotation. The tumor itself was not painful on pressure but pain was reflected down to the knee.

HEINEKE: This author observed a case in the Greifswald clinic in which after a rheumatic inflammation of the hip-joint a prominent and distinctly fluctuating tumor developed. This followed the direction of the iliopsoas muscle from Poupart's ligament downward and raised up the femoral artery. On pressure the tumor diminished but on removal of the pressure the tumor again became prominent. Passive motion of the hip-joint was free and painless. In this case there was accumulation of fluid in the iliac bursa and this communicated with the hip-joint which also contained an excess of fluid.

WOOD[6] reported a case in a thin man 28 years old, who two years previously, while convalescing from typhoid fever, had sprained his left hip. Walking was associated with severe pain. Six weeks later he noticed a swelling in this region. There was swelling both in front of and behind the hip and fluctuation was definite. A diagnosis of gluteal abscess was made. The patient, on account of well-marked contraction of the iliopsoas muscle, was unable to extend the leg. The tumor ruptured and there was a spontaneous expulsion of particles of bone as large as beans. The hip-joint was freely movable and not painful. This is one of the very few cases in which the bursa contained foreign bodies.

COUTEAUD: This patient was a man, aged 31, who was very strong and had done heavy work. Six years previously he had had syphilis. In the left inguinal region and on the inner side of the thigh was a prominent tumor the size of an egg. This was smooth, rounded, painless and could not be made to disappear. The skin over it was freely movable. On examination fluid could be detected in the pelvis and this fluctuation communicated with the tumor. The hip joint was normal. The tumor was punctured and clear citron yellow slightly tenacious fluid came away. In this case the chief pain was in the region of the knee.

Since Zuelzer's paper several cases have been recorded. The most interesting one is that of DELBET.[7] This surgeon gives a very short account of a case in which he diagnosed a cystic tumor of the iliopsoas bursa (a hygroma) before operation. On opening the sac he found three foreign bodies each of which was the size of a large nut.

DIAGNOSIS

In summing up his article Zuelzer points out that these tumors may be of various sizes and that the swelling

4. Deutsch. Ztschr. f. Chir., 1899, L, 148.

5. Those interested in the development of bursæ should not fail to read the excellent paper on Luetic Bursopathy of Verneuil by Dr. John W. Churchman, Resident Surgeon in the Johns Hopkins Hospital (The Am. Jour. of the Med. Sc., September, 1909).

6. This is the only case of Zuelzer's that I could not confirm, as the reference is incorrect and consequently I have not been able to obtain Wood's original article. I was unable to trace the case either in the *Index Medicus* or the Index Catalogue of the Surgeon-General's Library.

7. Corps étranger contenu dans un hygroma de la bourse du psoas, Bull. et. mém. Soc. de chir. de Paris, 1902, xxviii, 1264.

indicates primarily the anatomic position of the subiliac bursa. As the tumor increases it may extend far below Poupart's ligament, sometimes reaching to the middle of the thigh. It may consist of one tumor or be made up of several. It may spread out on either side of the iliopsoas muscle or extend in various directions, and may communicate with the joint. When more than one tumor exists it is often possible to press the fluid from one tumor into another. On releasing the pressure the fluid at once comes back. The tumor may extend forward beneath Poupart's ligament and then backward along the course of the iliopsoas muscle as in our case.

In some cases fluctuation can be detected, but in others the tension is so marked or the cyst walls so thick that the tumor is supposed to be solid.

The skin is, as a rule, freely movable over these tumors provided inflammatory conditions are absent. Many of the tumors are painless, but when one remembers that the growth develops beneath the crural nerve and puts it on marked tension as in the case reported, it is but natural that any excessive movement of the hip-joint should be accompanied not only by local pain but also by pain referred to the knee.

Zuelzer found that the typical position of the leg in these cases is in abduction, outer rotation and slight flexion of hip. In this position there is naturally a minimum tension on crural nerve and iliopsoas muscle.

In these cases the hip-joint is, as a rule, perfectly normal, the great trochanter bears its normal relation and there is no shortening of the leg. In this way it is possible to exclude completely fracture of the neck of the femur, fluctuations and diseases of the hip. In my case there was three-quarters of an inch shortening. The joint itself was perfectly normal.

ETIOLOGY

The majority of these cases have followed some injury, although syphilis and rheumatism are also supposed to be contributing factors. In my case the connective-tissue walls of the cyst contained bone. This should occasion no surprise as this fibrous tissue is similar to and continuous with that forming the joint. The presence of large free foreign bodies in the sac is most unusual, but when we remember that small free cartilaginous bodies are not infrequently found in the knee-joint, it should not appear strange that a sac communicating with the hip-joint might contain similar products. The foreign bodies in the case reported, however, were exceptionally large.

TREATMENT

In times past, local applications were sometimes made; at a later date some of the tumors were aspirated, but the fluid tended to return. In cases similar to mine complete removal of the sac is the only satisfactory solution of the problem. Here it was necessary not only to get rid of the secreting surface, but also to remove the large free foreign bodies. Under no circumstances should irritants be injected into the sac as was formerly done. The surgeon cannot, as a rule, determine definitely before operation whether these bursæ communicate with the joint or not. The results from operative treatment should be most satisfactory.

Monroe's beautiful atlas containing a description of all the "Bursæ Mucosæ" of the human body, published in Edinburgh in 1788, should be read by every surgeon. It will undoubtedly stimulate increased study of this subject and materially help to clear up many imperfectly understood conditions originating in the bursæ in various parts of the body.

3 West Preston Street.

SECONDARY (POSTERIOR) GASTRO-JEJUNOSTOMY

FOLLOWING RECURRENT ULCER AT SITE OF ANTERIOR GASTROJEJUNOSTOMY PERFORMED EIGHT YEARS PREVIOUSLY; TOGETHER WITH STATEMENT AS TO CAUSE OF GASTRIC ULCER.*

J. F. PERCY, M.D.
GALESBURG, ILL.

Patient.—I. J. H., American, aged 43, a man, consulted me in March, 1900, for symptoms that could be referred only to an active pyloric ulcer of the stomach, combined with symptoms of obstruction. It is unnecessary to enumerate these symptoms. His history, extending over a period of four years of invalidism, was the cardinal one that has become so well known by constant repetition in the literature since that day. I urged operation and the patient passed into the care of one of my Chicago colleagues, who did, by the suture method, an anterior gastrojejunostomy without entero-anastomosis, the following June.[1] The patient had a smooth convalescence and an ideal result until January, 1908, when he began to complain of a return of the old distress which made his first operation necessary. This was his history until March, 1908, when he had a very severe and prostrating hemorrhage from the stomach. It was after this hemorrhage that I saw the patient again. He had lost practically no weight from his normal previous post-operative weight. He looked emaciated, however, and his skin had the indescribable saffron hue so often indicative of malignancy. Under the left rectus muscle, and about two inches from the costal cartilages, could be felt a movable, painful mass about the size of a goose-egg. The hemoglobin percentage at this time was 40, weight 160 pounds. The patient was put under medical treatment and improved in every way until October, 1908, when he had another severe hemorrhage. He had been advised to be operated on again, but conditions were such that he could not give consent until the necessity for a second operation became imperative. He improved on the building-up plan of treatment, the hemoglobin increased to 60 per cent., and the mass became smaller and much less painful, but never disappeared. Blood was found in the stools at three different examinations. No analysis of the stomach contents was made, because of ignorance of the depth of the floor of the ulcer and its character. The danger of perforation of an ulcer from a stomach-tube is probably remote, and yet one is not anxious to prove that this is so in the human subject. It is a very inadequate statement of the patient's condition to say that he was suffering from all of the sequelæ of gastric ulcer.

Operation.—I opened the abdomen Feb. 25, 1909, by excising the scar in the abdominal walls of the previous operation of June 30, 1900. There were three separate and distinct pathologic facts presented to the eye: first, an enormous thickening of the efferent and afferent loops of the attached jejunum; second, a perforated gastrojejunal ulcer at the point of the previous anastomosis; third, a complete burial of the pylorus and the adjacent liver region in a mass of dense adhesions. The most striking and insistent thing was the hypertrophy of the jejunum. Its external diameter was fully 2½ inches. The color was redder (more injected) than normal, and the intestinal wall had a juicy or edematous feel and look that was far from natural. It is excellently represented in Figure 1. Both loops were empty, but very heavy. Manipulation of both the loops reminded me of my boyhood days, when I succeeded in catching a big eel; i. e., the walls were stiff and thick and did not have the normal, collapsible feel of the small intestine. The great omentum had been pushed away so that it lay toward the left of the median line, giving an almost unobstructed view of the jejunum. The stomach was not greatly dilated and its outline was not appreciably changed

* Read at the Omaha meeting of the Western Surgical and Gynecological Association, Dec. 20-21, 1909.

1. A report of the operation will be found in the Med. Rec., New York, lviii, 215, Case 11.

because of the attachment of what had become an abnormally heavy jejunum. In other words, the stomach was not funnel-shaped. At the time of the first operation eight years before, it was reported that the jejunum was so small in diameter that an extra long loop—three feet or more—was necessary before the intestine was found large enough to serve the purpose of anastomosis. At my operation the afferent loop was not over 15 inches in length. The extreme thickness of the intestine seemed to have been obtained at the expense of the length of the tube necessary at the first operation. Retraction, hypertrophy and edema would seem necessary to explain the physiologic pathology of the process which would account for the physical appearance of the afferent, and probably the greater part of the efferent portions of the intestine. This hypertrophy of the efferent part of the intestines extended down into the abdomen and was lost to view. It was so big and thick and cumbersome to handle that to learn the full extent of it would have necessitated the manipulation which experience has wisely prohibited. The second striking thing was the ulcer. This had made its way completely through the lower left side of the first anastomosis, involving and destroying not only this portion of the line of union between the stomach and the jejunum, but some of the adjacent structures of both viscera as well. The diameter of the perforation was easily that of a silver twenty-five-cent piece (2.5 cm.). It had the characteristic look of the acute perforating ulcer of the duodenum which I have seen a few times, i. e., there was no inflammatory deposit about the margin. The intestine was merely open, with no hint as to how it became so. The edges were not exactly smooth, but they were also not thickened, as in the ordinary round ulcer. Indeed, the tissues at the rim of ulcer were macroscopically about the same as the rest of the intestine in physical appearance. The perforation was merely an absence of tissue. The hole in the stomach of the patient was covered for a space of about 2 or 2½ inches with omentum. This mass was palpable previous to the opening of the abdomen, and was the spot at which the pain was elicited when pressure was made. The presence of the omentum covering the perforation distinguished this case from the class of perforations in the duodenum referred to above. These latter were not covered with omentum, and no attempt at repair seemed to have been made by Nature. In the case under discussion, the omentum had performed its usual life-saving mission. The third insistent thing, when the abdomen was opened, was the "periduodenitis" referred to in the report of the first operator. This had evidently not grown any less in extent. The liver, gall-bladder, pylorus and duodenum were buried in a mass of adhesions (also well shown in Fig. 1) that were beyond treatment, even if it had been theoretically possible, or wise, to attempt anything in the way of treatment. The problem that presented itself was merely the one of dealing with the ulcer with its history of pain, hemorrhage and exhaustion. The artificial pylorus was not a problem in the case. It was evidently well made in the beginning; it had not appreciably contracted; it was oval in shape, at least an inch in its longest diameter, and nearly three-fourths of an inch in width. When the protective omentum was removed from the ulcer its diameter increased that of the artificial pylorus at least one-half inch. The easy management of the ulcer was interfered with by the gross pathology of the parts. The thickness of the jejunum, with its consequent stiffness and edema, did not encourage reckless attempts at surgery of any kind. To attempt to cover the ulcer by suture did not promise much, because part of the tissue involved was in the cicatrix produced by the previous operation. I finally decided, for both physiologic and anatomic reasons, that the easiest way out of the difficulty was to undo the previous anterior operation and to do a posterior as a substitute. This was done, and the openings left in the stomach and jejunum are very well shown in Figure 2. Both of these openings were closed with the Connell-Cushing sutures, the stomach turned over, and the posterior operation made. The technical difficulties were not slight, because of the great openings left after the parts were separated; this, with the abnormal thickness of the involved portion of the small intestine, together with the edema, made suturing difficult. I made use of the short loop, i. e., in this instance the proximal portion of the jejunum.

No sepsis followed. Indeed, convalescence and the final result have been, in every way, ideal.

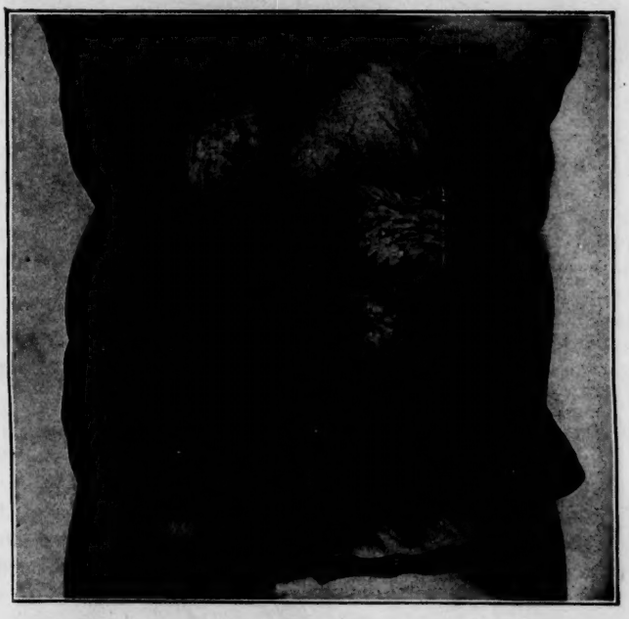


Fig. 1.—Hypertrophied jejunum and adhesions in case of recurrent ulcer at site of anterior gastrojejunostomy performed eight years before.

I report this case because of the extreme rarity of similar ones in the surgical literature of this country. As far as I have been able to learn, it is the first reported instance in any country, in which a previous anterior operation has later been converted into a posterior, with the use of the short loop. I regret that I cannot give a complete history, chemically, of the stomach contents previous to my operation on this patient. But, as stated above, I was deterred from making use of the stomach-tube by the fear of increased hemorrhage, or perforation.

But, aside from this lack of important scientific data, on the chemical side, there are a good many problems left for us, suggested by the above recital of the history of this case. In the first place, I think that we may profitably inquire why this patient had a recurrence of his ulcer. It was certainly not due to faulty technic in the first operation. Eight years of almost perfect health answers that question. Was the ulcer due to a nutritional disturbance in the part of the scar tissue incident to the anastomosis? I do not know. But the following facts at least indicate this as a possibility. The ulcer was on the left side of the anastomosis, and it had destroyed not only the line of union, but some of the adjacent tissues of the stomach and jejunum. This left side of the anastomosis was probably the point where the greatest tension was exerted by the peristaltic tugging of the efferent part of the intestine. This tension may have interfered with the circulation necessary to maintain the nutritional integrity of the intestine properly; hence the ulcer. True, we should remember that this union had been good for eight years. But the patient was also eight years older, and this must exert some influence in scar tissue under a probable constant strain in a patient at the age of 51. From the physical appearance of the intestine, it was more than probable that it was slowly but surely getting heavier. This, again, would tend to limit the circulatory nutrition of the parts, especially in the scar tissue.

This is probably, however, only a part of the reason for the recurrence of this ulcer. In looking for an explanation of the reappearance of ulcer after so long a time, and for that matter, the explanation of the occurrence of all ulcers, either gastric or duodenal, we cannot forget the very plausible theory of hyperacidity. This theory has been given new standing by a very illuminating article by Paterson,[2] who, indeed, refers to other possible causes of ulcer, but gives hyperacidity the chief rôle. He has very little to say regarding the part that the infections play in the production of ulcer of the stomach, duodenum and jejunum other than that produced by the "toxic" action of hydrochloric acid.

In 1904, at the Milwaukee meeting of the Western Surgical and Gynecological Association, it was my privilege to discuss the relationship of the infections of the gall-bladder to the infections of the stomach and duodenum as expressed in ulcer of either or both of these structures.[3] In that paper, viewed in the light of present knowledge, my present views based on later experiences, were not well expressed; but the practical significance of the observations of that time have not been changed as to the rôle that gall-bladder infections play in the production, not only of the ulcers under consideration in this paper, but of chronic infections of the liver and pancreas as well. A large majority of the cases of gastric and allied ulcers have a history of chronic cholecystitis, and I believe that the recurrence of these ulcers, after a well-performed gastro-enterostomy, is due to the persistence of the chronic infection in the gall-bladder which has not been disturbed or corrected by the anastomosis procedure. If hyperacidity is the cause of the greater number of ulcers, as asserted by Paterson in his excellent article, why is it that only 33 per cent. in a total of 56 of his patients had a "diminution" of their hyperacidity? Paterson further maintains that, as a necessary preventive of hyperacidity following gastro-enterostomy, the anastomotic opening should be ample. Failure to make the opening large will account, according to him, for the recurrence of the excess of gastric acidity. It is assumed that in the 56 operative cases reported as performed by himself, this necessary detail in technic was not overlooked; yet only one-third of his reported cases showed, as far as followed, a lessened hyperacidity.

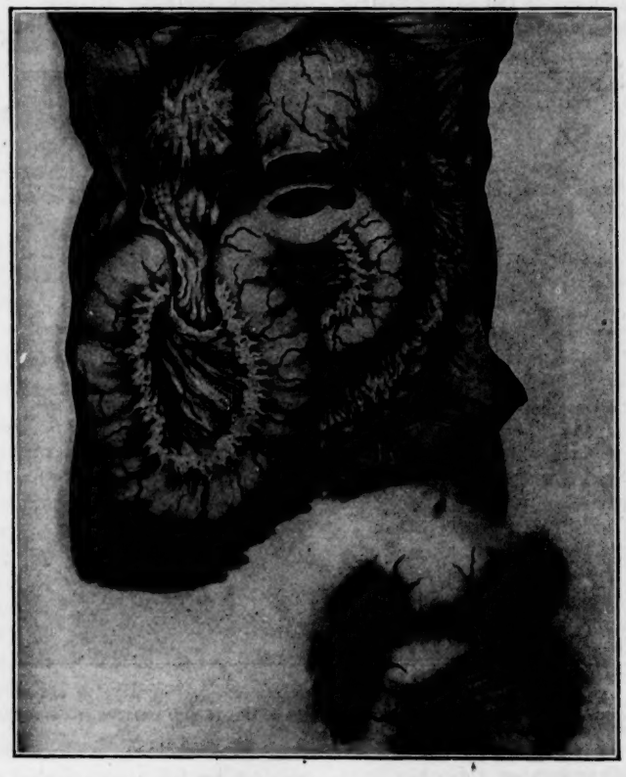


Fig. 2.—Lower right-hand corner, perforating ulcer at site of anterior gastrojejunostomy; above, appearance of former anastomosis on separating jujenum from stomach, also, at right-hand end of dissected anastomosis, perforating ulcer involving both stomach and jejunum.

Is the usual picture painted by the symptom-complex of gastric ulcer and allied conditions in other structures in this region not due to another cause than gastric hyperacidity? What were the findings in the case reported here when the abdomen was opened? Adhesions, stasis and infection. Is it strange that an ulcer should appear in close proximity to a reservoir the fluid contents of which have been shown repeatedly to contain not only an abundance of the colon and typhoid bacillus, but also many other forms, as streptococcus and staphylococcus?

The source of the infection of the gall-bladder need not concern us now. But we do need to remember that the typical and characteristic thing about practically every cholecystitis is its chronicity. Acute cholecystitis is a rare condition except when produced by the traumatism of gall-stones. The vast majority of the cases of cholecystitis are chronic because the bile seems to have the power of limiting the virulence of the poisonous organisms which are contained in it. But when this inhibiting influence is lessened, it is often expressed in the form of ulcer of the stomach or duodenum or jejunum. I believe this to be the rational explanation in every case of ulcer in this region of the abdomen, viz., a previous and long-existent cholecystitis. Hyperacidity may play a late part in these infections, but it is not the leading one. Hyperacidity is a common condition without obstruction, dilatation or prolapse. Hyperacidity, when long continued, produces a thickened and tough gastric mucous membrane; in other words, builds a wall against itself. Hyperacidity has no analogue in any other part of the body. Destructive hyperacidity is a chemical dream; while bacteria—some of which do, and others do not develop in the bile—form a focus of infection in the gall-bladder that has back of it all the possibilities spelled by the word infection.

The case which forms the basis for this paper has a known history of cholecystitis for twelve years. The anterior gastro-enterostomy improved the patient's nutrition for eight years to the degree at which it was possible for him to overcome the ill effects of his infection. But the anterior gastro-enterostomy in 1900 did nothing to relieve the chronic gall-bladder infection. The gall-bladder was left buried in adhesions. Because of this peristalsis was inhibited in all these structures, stasis of infected bile was perpetuated, and the chronic infection remained as a future menace to the stomach and the first portion of the small intestine. This menace of infection again became a certainty when it expressed itself finally by a hemorrhage in March of last year.

As I pointed out in my previous paper,[3] chronic cholecystitis may also be the "cause of cirrhosis of the liver in an individual otherwise free from the usual history

2. Paterson: Ann. Surg., August, 1909.
3. Percy, J. F.: The Practical Significance of Certain Common Symptoms in the Upper Abdomen, THE JOURNAL A. M. A., 1905, xlv. 98.

that precedes the average case of this disease, viz., chronic alcoholism," and I gave the history of three cases which bear out my statements. These are the cases of cholecystitis in which the liver and pancreas bear the brunt of the infection, and not the stomach or small intestine. To quote again from that paper:

As long as we have ulcer in the stomach or duodenum, or an infected gall-bladder, to furnish a long-continued infection through the lymphatics to the liver and pancreas, we are sure to have occasionally a patient who will die following operative procedures in the upper abdomen, regardless of the skill with which such operative procedures are conceived, or by whom carried out.

Is it necessary for me to add that infections of the liver and pancreas due to a chronic cholecystitis furnish a larger mortality, with or without operation, than do the infections in this region which result in ulcer?

In closing, permit me to urge that every gastro-enterostomy for ulcer, or its sequelæ, have combined with it drainage of the gall-bladder, unless the operator fears that the additional traumatism may add too much of additional danger to the outcome for the patient. This was true in the case which I have reported above. At the present time, ten months following the operation, the patient is in perfect condition in every way. Not only is this true as to normal gastric acidity, but weight, hemoglobin and strength are also normal. But the patient still has his chronic cholecystitis.

The cases of ulcer herein referred to in which cholecystitis is not present are so few in number that they may almost be ignored. I believe that cholecystotomy is practically always indicated because their successful and permanent cure can only thus be secured.

147 South Cherry Street.

A METHOD OF TREATING MANDIBULAR FRACTURES *

ROBERT T. OLIVER, D.D.S.
Examining and Supervising Dental Surgeon, U. S. Army
WEST POINT, N. Y.

Modern surgical science teaches that the essential requirements for successful treatment of mandibular fractures are readjustment of fragments, restoration of normal dento-articular plane, fixation, immobilization, rest, nourishment and aseptic hygiene.

Of these cardinal factors there is little doubt but that fixation and immobilization have always proved the greatest problems. Surgical history is replete with various and many methods for the accomplishment of these ends, and a review of the literature on this subject shows that during the past half century, or since the Civil War, there have been two general schemes in vogue, each with numerous modifications, namely, the application of external support through medium of mento-mandibular splints, with occipitomental counter-pressure and the application of internal support through adaptation of interdental splints, with occipitomental counter-pressure.

Generally speaking, the medical profession has advocated the first, and the dental profession, from which it emanated, has championed the second method.

In addition to these, there has been frequent recourse to processes of wiring and in recent years to a natural development of these processes, the adjustable fracture bands and traction-bars.

* Read in the Section on Stomatology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

So many well-founded objections have been raised against the use of external splints, mainly on account of their general inefficiency in maintaining adjustment of contour and articular plane, that the method has become practically obsolete. The introduction of interdental splints marks an epoch in the history of maxillary fractures of which dentistry may well be proud. It gave at once such assurances of holding the adjustment and

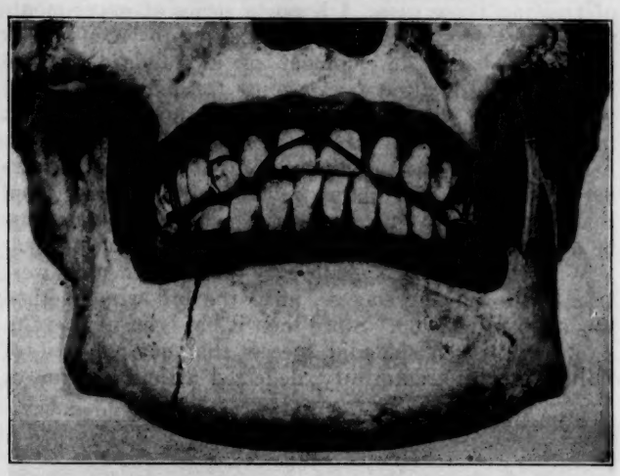


Fig. 1.—Front view, showing detail of wiring by anchor loop and traction wire method.

maintaining the articular plane, thus restoring normal function and preventing deformity, that it rapidly sprang into prominence and custom. But the indiscriminate use of these appliances without due consideration of the individual requirements of each case, or of the kind, style or application to the cases presenting, combined with such objections as uncleanliness, strain and soreness of muscles from jaws being kept open, the length of time required before appliance could be constructed and the discomfort to the patient in securing proper impressions, have produced a marked decrease in their popularity.

Fig. 2.—Left lateral view of same subject.

The objections to the usual methods of wiring have been due to faulty modes of application and to the kind, size and strength of wire employed. In a great majority of cases the ordinary silver suture wire, 26 to 30 gauge, has been used. This always stretches under stress, becomes loosened from around the teeth, releasing the traction necessary to fixation and is often forced into

the soft tissues, producing distress to the patient and the usual consequences of irritation and inflammation.

The adjustable fracture band and traction-bar method has proved very efficient. Its disadvantages accrue from the numerous appliances required, which tend to hinder its general applicability.

Being firmly convinced that a process of wiring presented the simplest, easiest, quickest and surest method of treating these cases, I began a series of experiments some years ago, with a view to the improvement of its technic and the development of a standard method whereby rigid fixation and absolute freedom from mobility could be obtained. It was recognized early that much heavier wire, less ductile than silver, would be necessary, that the old figure-of-eight plaiting of wire across the line of fracture must be discontinued, and that some plan to prevent lateral mobility of jaws must be devised.

With these objects in view, various schemes were tried, with varying success, until the following method was adopted in 1903. Since then it has been used exclusively, with such splendid success that not one case of failure to unite, deformity, deflected articular plane or

Fig. 3.—Cadet ————, U. S. M. A. Compound fracture, transverse through socket of right lateral. Showing deformity one hour after occurrence.

impaired function has resulted. For purpose of illustrating the method let us suppose a case with simple fracture, slightly transverse through socket (distally) of right first bicuspid and mental foramen, slight deformity, articular plane deranged, long anterior fragment drooping somewhat and short posterior fragment drawn slightly upward and inward—the typical picture. The mouth is first thoroughly cleansed with hot antiseptic wash and swabs, the location and extent of fracture determined and the fragments adjusted and articular plane restored. Then a piece of soft drawn copper wire, about 4 inches long, previously annealed and sharpened at each end, is inserted from without inward between the right lateral and cuspid, is pulled through about half its length, burnished lingually to cuspid and then inserted from within outward between cuspid and first bicuspid, pulled through buccally again, where it is held. The other end is now brought back and inserted at the latter interproximal space, pulled through taut, burnished lingually to first and second bicuspid, carried back across line of fracture, inserted from within outward between first molar and second bicuspid, pulled through buccally again, brought forward taut across line of fracture and twisted with remaining end at a point opposite an interproximal space. The adjustment of contour and articular plane is now verified; after which the ends are tightly twisted, bringing firm traction through axis of each fragment across line of fracture which temporarily will hold the parts in their exact

Fig. 4.—Same patient, front view, with jaw wired.

position. The twisted ends are clipped off, leaving a stub about an eighth of an inch long; this stub is turned upward and inward, entering the interproximal space far enough to prevent it from injuring any soft tissues with which it may come in contact. Immobilization is next accomplished by wiring lower to upper teeth, while occupying normal occlusion. This is done by the following original method, which insures against the possibility of *any* mobility, either lateral or perpendicular: First, an anchor loop is made by taking a six-inch piece of annealed soft-drawn copper wire, 20 gauge (B. & S.), bending it in the middle around a small-sized mandrel about one-thirty-second of an inch in diameter, and twisting tight by one full turn with flat-nose pliers (the twist may be strengthened by "tacking" together with a small bit of hard solder). The two long ends are now straightened out and placed parallel to one another, one end being snipped off one-fourth of an inch shorter and both ends pointed. They are now inserted from without inward, between the two superior central incisors, pulled through taut until loop rests, horizontally, firm against

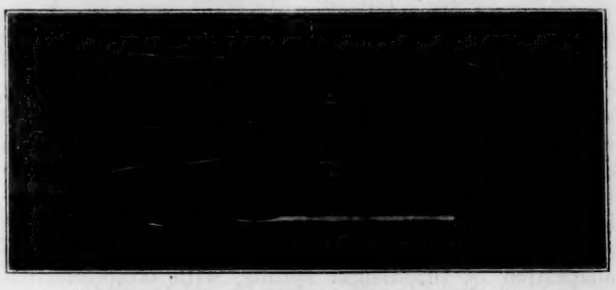


Fig. 5.—Median and lateral anchor loops and Peeso's reamer.

both teeth at the mesocervical border. Each end is now carried laterally from median line, burnished, respectively, to lingual surface of each central, and inserted from within outward between its respective central and lateral, pulled through firmly, brought forward to median line, above loop, and twisted tightly together, clipping off and turning stub into interproximal space as before noted. This forms a solid, permanently fixed, median anchor loop from which counter-traction may be

had from each lateral half of mandible for support and the prevention of lateral mobility. Four pieces of the same wire, about 3 inches long, are in turn bent around the mandrel as before cited, forming the loop about one-third distance from one end, and the long end sharpened. These lateral anchor loops are placed around solid teeth, one on each side, usually first molars or second bicuspids, in both upper and lower jaws, and serve as anchorages for the traction wires, one for each side. These traction wires, threaded through all the loops commencing with median, then superior lateral, then inferior lateral and finally twisted with outer end midway between inferior lateral and median loop, exert a firm and constant pressure between upper and lower jaws and at the same time maintain counter-traction laterally. The twist is clipped short and may be turned upward under upper teeth. The lateral loops are positioned by inserting long ends into mesoproximal spaces of the respective teeth selected, pulled through taut until loop rests horizontally against cervicoproximal border, then carried backward, burnished to lingual surface, inserted from within outward at distoproximal space, pulled through firmly and twisted to outer end as near the latter proximal space as possible in order that the increased size of twist, being too large to pull back through space, will prevent the anchorage loop turning under stress of subsequent traction and also that the twist may be clipped off and turned into the space as above shown. The traction wires are about 7 inches long, of same material, and should be annealed before being used. Care should be exercised to keep each one perfectly straight between loops and pulled taut in passing through each loop. When properly placed there will be produced a triangular geometrical figure with its first "stretch" a long horizontal line from median to superior lateral loop, a short perpendicular line from superior to inferior lateral loop and a long slanting diagonal line from inferior lateral to median loop, in which the twist has been made. With these heavy traction wires firmly fastened from each side of jaw with teeth in normal contact, there is little likelihood of any kind of motion between either the fragments or the jaws. Thus we have absolute fixation and immobilization exemplified in one operation of two stages.

It usually becomes necessary to tighten the wires after the second day. This is readily accomplished by simply turning an angle with narrow-beaked flat-nose pliers in each long stretch of each traction wire, thus taking up the slack which may be caused by loosened lateral anchorages, from inflammatory processes or by the stress of traction on the respective teeth. This tightening can be done every few days, as required, until the angle thus formed may be turned so far as to produce the letter Z. It seldom reaches this point, however, if care is exercised in keeping wires straight between loops and taut at each, when they are first applied.

Should a wire break or become ineffective from being stretched, a very firm occipitomental bandage is applied and both traction wires cut and removed. The anchorage loops are now tightened and new traction wires applied as before.

In cases in which the teeth are irregular or crowded too close together to permit the insertion of wires between them, an opening is made through soft tissues and alveolar process about one-eighth of an inch below its superior border and between the roots of teeth. This is done by quickly forcing a rapidly revolving Peeso reamer through at the point desired, and is usually accompanied by very little pain and slight hemorrhage. The subsequent tight pressure of wires on these soft tissues requires no other attention than the maintenance of cleanliness, as the position of wire is accommodated and the pain is negligible. In severe cases, in which a general anesthetic is required, the whole operation above outlined should be completed except the insertion of traction wires. These should not be introduced until the next day, after the fear of nausea or vomiting has passed. Even then it is well to leave a small pair of wire-cutting shears with the attendant, with instructions how and when to use them should such interference be necessary.

With this means of securing durable fixation and thorough immobilization, the physiologic function of reuniting takes place readily and rapidly.

The patient is fed on liquid diet, consisting of broth, thin gruel, milk, custards, etc., every two hours, with egg-nog three times a day, taking it through a rubber tube which may enter the mouth either through an existing vacuity or by being forced back through the post-dental space.

The patient rarely experiences pain after forty-eight hours, and if the usual instructions in regard to rest, nourishment and oral hygiene are followed the wires may be removed during the latter part of the third week, a firm occipitomental bandage being substituted for them for several days following. In removing the appliances, the traction wires are first cut and slipped out, leaving all anchorage loops *in situ* for subsequent use should it become necessary, for any reason, to fasten up the jaws again. When everything is finally removed the teeth, mouth, tongue and gums should be thoroughly cleansed and the patient instructed in the discriminate use of the jaw for a period of several weeks.

With some nervous patients having a hysterical tendency, it is good practice to supplement this wiring process by adjusting one of the many forms of occipitomental bandages—this as much for the psychic effect on the patient as for any mechanical assistance rendered.

Hot antiseptic mouth-washes should be used five or six times daily and all the loops, wires, teeth, gums and mucous surfaces thoroughly swabbed with a 50 per cent. solution of hydrogen dioxid at least once a day, followed by the hot antiseptic solution.

ABSTRACT OF DISCUSSION

Dr. M. I. Schamberg, New York: In treatment of fractures of the jaw, we are not always able to employ anything which depends on the occlusion of the teeth, because in some cases the teeth are absent, but when there are a sufficient number of teeth to use one jaw to splint the other, I think it is the ideal method of treatment. I do not altogether agree with Dr. Oliver that so elaborate a method of wiring is essential, as I have achieved good results from the use of very simple methods. That is, taking ordinary brass wire, passing it between the teeth, and bringing it up taut as for the retention of a rubber dam. I do this in several parts of the mouth, thus supporting the lower jaw. I frequently find it necessary to run these wires in various directions to maintain proper traction. In dealing with these fractures, owing to the fact that many of them reach us after the patient has gone through other hands and reduction has not been complete or has not been maintained, I have found it necessary to pass the wire through the inter-dental space between the bicuspid of one side and create traction forward by means of this by an assistant while the jaws are brought into position. I believe that the method outlined by Dr. Oliver is a valuable one, particularly because it gives the part absolute physiologic rest. It seems to me unreasonable to expect good results with the use of splints which permit the patient to masticate during repair. A patient can live for many weeks on liquid nourishment.

DR. J. E. POWER, Providence, R. I.: I agree with Dr. Schamberg that the more simpler methods of using wire have given excellent results. I cannot, however, agree with either Dr. Schamberg or Dr. Oliver in the recommendation of any appliance that will cause absolute fixation of the upper and lower jaws. I believe that it is unfair to incapacitate the patient if the fracture can be treated in any other way. Dr. Oliver describes in his paper the method which I have used in what is known as "first aid to the injured"—not, however, with the exacting technic or elaboration which he has demonstrated here. In fractures such as Dr. Oliver has described I first get an impression of both the upper and lower jaws, then I make plaster models, sawing the model through the lines corresponding to the lines of fracture. I then reconstruct the model, first getting normal occlusion, with the opposite jaw. A die and counter die are then made and a metallic splint is swagged (preferably of aluminum) to fit over the teeth on the reconstructed model. The time consumed is not much more than one hour, and the operator may have the prosthetic assistant attend to the making of the splint. If the model has been properly reconstructed according to recognized anatomic lines, the splint can be easily adjusted. Its advantage is that the appliance does not incapacitate the individual in any way, and it does not interfere with the natural method of feeding. Three or four hours after the splint is adjusted the patient can go on with his regular work, without any inconvenience. Dr. Schamberg places great stress on physiologic rest. If the cardinal principle of surgery is rest, then we bring it about in the case of fracture, by fixation. If there is a fracture through the bicuspid region such as the one described by Dr. Oliver, and the fragments are brought together and held in position by a metallic splint, the parts are given physiologic rest. Physiologic rest does not mean absolute rest of the whole oral cavity and its appendages, if only one of the bones is fractured. This is demonstrated in the general practice of surgery. If a fractured limb is subjected to absolute rest for a long period, there will be muscular atrophy; this is guarded against by the general surgeon through the medium of massage of the parts involved. If this great law of use and disuse applies to a limb, it is reasonable to believe that other parts of the body will be likewise affected. I claim, therefore, that it is an advantage to overcome this tendency to muscular atrophy, by allowing the patient to use his jaws and by holding the fragments in position with the splint which I have described, whereby the proper amount of physiologic rest is applied to the proper area. I think that absolute rest of the jaw which is not affected, as well as of the affected one in uniting them by any method which will impair their normal action is a disadvantage both to the process of repair and to the comfort of the patient.

DR. GEORGE V. I. BROWN, Milwaukee: There are many conditions under which we have to care for fracture of the jaw; therefore, we need many appliances and different forms of treatment. Dr. Oliver offers his method as one kind of treatment and would, no doubt, make distinction in the treatment of other cases. He has given a method of wiring the jaws which is undoubtedly one that would give absolute immobility and is free from the disadvantage of silver wire, which I think a very important improvement. I abandoned silver wire some time ago, because it is not trustworthy. There are a few principles in the treatment of fracture which I try to keep in mind. One is, I never fix the jaws immovably unless I know that I am obliged to. There are many reasons for this: one Dr. Oliver himself called attention to—in case of vomiting this is sometimes a very serious condition.

DR. M. L. RHEIN, New York: What other objections to immobilization have you?

DR. BROWN: None to immobilization of the fractured bone, but much to fastening the two jaws immovably in contact with each other. One is vomiting. Again there may be septic infection. If it be a comminuted fracture there are apt to be sequestra of bone coming away, and in these, as with other cases, it is important to be able to get into the mouth and keep it clean. Again, there is the question of food and nourishment. Or, there may be other injuries which make jaw fixation inadvisable.

DR. M. L. RHEIN, New York: I agree with Dr. Brown on the presentation of Dr. Oliver's improved method, and I want to emphasize strongly one of Dr. Brown's points, and that is the ultimate method of immobilization. It is often important to delay to some extent in the manner described. If there are any sequestra of bone in the fracture it is important that they should be thoroughly diagnosed as early as possible. I have a number of such cases that have slipped by the hands of surgeons without such a diagnosis having been made, necessitating a subsequent operation on the mandible. At present, with the aid of the *x*-ray, it seems impossible to make such an error, and I think this is another instance in which the value of the radiograph when it is obtainable is of great importance in determining the absolute line of fracture, as it will also readily show whether or not there are any comminuted pieces of bone necessitating operative interference before any form of immobilization is permanently used.

DR. W. C. FISHER, New York: I think that there is one class of cases in which Dr. Oliver's method is very applicable; those that might be termed vicious. Patients who are in the habit of taking intoxicants, sometimes become very unmanageable and tear off the splints, and in such cases this method would be most desirable. I recall the case of a patient with a fractured mandible, acquired in a drunken row. After having an interdental splint in place for about a week, he became so crazy for a drink he went to a saloon and tore off the splint in order to drink. It was necessary to wire his jaw. Some method such as described by Dr. Oliver would be far better than wiring the bone.

DR. M. I. SCHAMBERG, New York: We have overlooked the fact that this form of treatment is applicable to all forms of fracture at or above the angle of the jaw to much better advantage than any splint which enters the mouth. Anything which tends to distend the mouth or which depends on the adjustment of a splint is not serviceable in cases of fracture at the angle or above the angle. When the fracture is at the neck or about the head of the condyle I believe that the wires should be so placed that there can be passive motion at proper intervals.

DR. STEWART L. MCCURDY, Pittsburg, Pa.: Without referring particularly to the method, it appears to me to conform in some respects to that suggested by Angle, except that he applies bands instead of wires in order to secure replacement of bones. I desire to make two points. I use iron wire. I have taken *x*-ray photographs of these iron sutures year after year during the last eight years, and find that the iron eventually becomes disintegrated and entirely disappears, so that it is harmless so far as its action on the tissues is concerned. As to the adjustment of the bone itself, being a general surgeon, I use the means at my command, just as the dentist uses the means at his command. I use the through-and-through method of wiring in all these cases. Several years ago I reported 18 or 20 cases in which this method had been used.

DR. R. T. OLIVER, West Point, N. Y.: While I do not claim that this method of treating fractures will successfully meet the requirements in every case, yet I think its application in general will come nearer being the correct treatment for more cases of fractured jaws than any other one method. Neither this method nor any other can be hailed as the universal one for all classes of cases. I merely attempt to portray a method of treating mandibular fractures, in which I bring out an original scheme of securing absolute immobilization by a process of wiring. I prefer the word adjustment instead of reduction in speaking of fractures of the jaw. We reduce luxations but really do not reduce fractures. I am not trying to change the nomenclature of surgery but this is the way it appears to me. Some one suggested that the question of occlusion or the articular plane could be dispensed with, in favor of some other things of greater importance. I want to say most emphatically that the most important thing in treating jaw fractures is to restore occlusion and reproduce the function of mastication. Even deformity must take second place to impaired function. This is especially true in the army, where the soldier's physical fitness and military efficiency is to a great extent dependent on his ability to masticate his food thoroughly in preparation for the process of digestion and assimilation, in order that his full physiological powers may be maintained. His personal appearance counts for naught. Of course there are a few cases in which impaired functions and deformity cannot be restored together, but if it comes to a question of one or the other, it

certainly is for the best interest of the patient that his ability to masticate receives attention first. I believe that both anatomic and physiologic rest are essential in these cases. The earlier we can operate and get the end of the fragments together, thus facilitating the initial processes of callus formation, the quicker and less troublesome will be the cure.

The remarks of Dr. Schamberg in regard to the continuation of the old method of wiring, are rather surprising. I presume he refers to the method of using small guage silver wire by the figure-of-eight method or some modification of it. I have used and seen it used by able surgeons, many times, and its reliability in these cases is always questionable. The failures to maintain fixation and immobilization are not through technic, but through fault of the wire itself; generally it is too small and too ductile to withstand the stress of tension. In the methods spoken of by Dr. McCurdy, I believe there will be extensive oxidation of the wire used, with more or less permanent stain of the tissues and a marked metallic taste complained of by the patient.

The method I have described was developed during my service in the Philippine Islands and is the result of a gradual evolution of experimental wiring in these cases. During the early days of foreign service, before the department furnished adequate equipment, many makeshifts had to be utilized. On one occasion, I was called hurriedly to one of the reserve hospitals in Manila to attend a case of multiple compound fracture of the mandible. The man had been thrown and stepped on by his horse and was in such pain, with profuse hemorrhage, that an immediate operation was necessary. Previously I had always used silver wire—the Fleurs sutures—but there were none available at that hospital and as an expedient an orderly was sent with a note to a nearby Signal Corps station requesting some 20 guage wire. He returned with a big roll of copper, field telephone wire, from which I burned the insulation. After annealing and sterilizing, this was used and proved so efficacious and superior to the silver wire in being tougher, less ductile and possessing greater stability of the twists, that it has been used ever since.

Some one referred to the use of modeling compound. This material has proved useful in emergencies, and first-aid treatment, but I do not wish to discuss its possibilities at present as it will be covered in another article now under way.

THE FUNCTIONS OF A UNIVERSITY MEDICAL SCHOOL *

VICTOR C. VAUGHAN, M.D.

Dean of the University of Michigan College of Medicine and a Member of the Council on Medical Education of the American Medical Association

ANN ARBOR, MICH.

The functions of a university medical school are many, varied and important. Some pertain to the school itself, some more particularly concern the university as a whole, while others are chiefly employed with affairs that lie quite outside of the university. All are correlated, however, and more or less mutually dependent. It is my purpose in writing this paper to outline briefly what a university medical school should be and some of the things that it should do.

Without men of proper intellectual and temperamental equipment no great work can be accomplished; consequently the school must be developed and directed by a faculty, the members of which have both the inclination and the ability to move forward in the right direction. A university professor should be possessed of a broad fundamental training, including both the humanities and the sciences, and on this as a foundation he should develop expert knowledge of the special subject in which he is to instruct others. His training should be both general and specialized. The former gives him a broad outlook and causes him to realize that all knowledge is correlated, while the latter is essential to every one who has any claim to leadership. Appreciation of productive scholarship in American university medical schools is growing, and the research now being done in some of the best of these schools begins to compare favorably with that of European institutions. However, it still remains difficult for university presidents and boards of control to distinguish between pseudoscholarship and real scholarship in the selection of professors, and appointment to such a position in this country is no guarantee that the appointee has either culture or learning. In this particular the university medical schools are faring better than other university schools, because in the former nominations for new professorships and to fill vacancies have been generally left to the faculty. Some universities seem to feel that they are doing their full duty if they fill one or two chairs with research men. As a friend of mine has expressed it, they act as if the possession of a silk hat is the sole requirement of a well-dressed man. The demand for productive scholarship in university medical schools should be more fully extended to the clinical subjects than has been evident up to the present time. It should be expected of each professor not only that he master his specialty, but that he labor to make worthy contributions to it. This it is that has made German medical science so pre-eminent. The old fallacy that a research man is only a dreamer, without practical knowledge, and consequently not a successful teacher, is slowly, too slowly, fading away in this country. The deepest inspiration for work comes only to the one who can occasionally drink from the head fountain of knowledge, and opportunity for research is as essential to the teacher of any branch of medicine as is air to the support of life. The university professor who does not devote a considerable portion of his time to honest and earnest endeavor to extend the bounds of knowledge is unworthy of his position and should be replaced.

The evolution of the combined course for the medical student has been an important and wise move. That it has its deficiencies is true, but there is always the opportunity for improvement. I would be pleased were it to provide for a more extended and thorough knowledge of the classics. The small requirement in Latin is not wholly worthless, but it is altogether inadequate, and the absence of any requirement in Greek is unfortunate. It is true that the medical student learns something of Greek in every subject even without knowledge of the alphabet of that language, but he too often only sees through a glass dimly, while two years of proper preparation in Greek would enable him to discern more clearly the significance of the terms that he employs daily. However, even with its deficiencies, the combined course gives at least the opportunity for the medical student to start on his professional studies from a point of great advantage. The humanities and the sciences, in their fundamental principles at least, afford him a sure and safe foundation on which he can proceed to erect the professional superstructure. The principles of chemistry, physics and biology which he has acquired are the foundation stones on which he is to build. The modern languages place within his reach most needful help. His mathematical studies give an idea of the necessity of exactness and fitness of proportion, and, as he builds, his general studies, history, literature, political economy, psychology, etc., supply the windows from

* Read before the Sixth Annual Conference of the Council on Medical Education of the American Medical Association, Chicago, Feb. 28, 1910.

which he can look out over the wide realm of human experience. Surely, our successors in medicine, in the mass, should add much to the science and advance the practice of our profession.

Next to the selection of a proper faculty and provision for well-prepared students comes the equipment of the medical school. To this important subject I can devote only a few sentences. Fortunately the Council on Medical Education has formulated a somewhat detailed statement on this subject, and to this I refer those who wish to investigate this matter. More than thirty years in a relatively small school and observation of others, both small and large, good and bad, lead me to say in general terms that the primary cost of a suitable building and its proper equipment for a school with an entering class of from fifty to one hundred students cannot now be provided for with less than one-half million of dollars ($500,000). It should be understood that this does not include hospital facilities, which would multiply the above figures by not less than four. Moreover, it provides laboratories and class rooms of only the plainest kind, and it makes no provision for any equipment above that which is absolutely essential to high-grade work. The yearly support of such an institution, again apart from the hospital, demands nearly two hundred thousand dollars ($200,000). With average tuition and laboratory fees the annual income of a medical school should be multiplied by at least three, better by four, in order to balance the necessary expenditures. As I have elsewhere pointed out, a medical education worthy of the name is the most expensive professional training offered in this country. The time has passed when a group of physicians can combine and launch a medical school and give anything like proper training to its students. The medical school of to-day must have behind it private endowment or state aid. Even universities should not attempt to establish medical schools unless they can afford the expenditures mentioned above, and provide adequate hospital facilities besides. To maintain a medical school inadequately is, in a certain and large sense, criminal, because it means the sending out of unqualified practitioners, and this means danger to the health and life of those whom they serve. I have elsewhere attempted to show that the state does wisely and serves its own interest in supplying the best medical education.

Of the functions of the medical school that lie quite within itself, I shall refer to only two. That of the thorough instruction of students naturally comes first, and needs no lengthy discussion. I desire to emphasize the fact that in many of its branches medicine has become an exact science, just as truly as mathematics, physics, chemistry and astronomy. This is true of anatomy, histology, bacteriology, physiology and pathology. In these studies, close observation, often with the aid of instruments of precision, is an essential, and carelessness in method is no longer permissible. The detection of the diphtheria or other pathogenic bacillus, the recognition of cancer cells in a tissue and the separation and identification of strychnia and other chemical poisons are exact scientific procedures, and the same is true of the production and employment of antitoxin. Without proper apparatus and its correct application these investigations cannot be made, and the findings are as definite and certain as those of the chemist or physicist. Good intention, affability in manner and even rectitude in conduct, all desirable in themselves, do not make a skilful physician. They cannot be employed in the diagnosis of disease, nor will they impart skill in surgical procedure. Looseness in statement and carelessness in method are not tolerable in either the teacher or the student of medicine.

Of the additional functions, some, as I have stated, lie within and some without the university. Of the former I will speak first. There are many advantages in the close association of the college and the different professional schools, which together constitute our larger universities. The collegiate department should serve for preparation for the professional schools, and the smaller colleges should also attempt to perform this function. In medicine at least the advances of the past few years have been so great that the secondary schools no longer suffice to fit the student for his professional studies. The Association of American Universities has done well in its definitions of a college and a university school. The college is regarded in these definitions as the preparatory department for the university schools which collectively constitute the university. An important function of the university medical school is to command the respect of the faculties and students of the college and other professional schools by the thoroughness of its instruction and the extent and value of its productive scholarship. The medical school should be a leader in both culture and knowledge. The uneducated, narrow man, ungrammatical in speech and of limited intellectual vision, whatever be his skill in his specialty, does not make a desirable professor in a university medical school. Scientific medicine deserves and should win the respect of the learned. In some things the medical man should be the leader.

Within the past decade a movement, such as the world has never before known, founded on medical research and discoveries, has been inaugurated and holds within itself the promise of the greatest good to the race. I refer to the realization, which is just beginning to dawn on the most enlightened men, that disease is the heaviest burden that humanity carries in its slow and weary escape from the mire of superstition on its way to the uplands of human betterment, and that disease is, for the most part, a result of man's ignorance, and consequently the more preventable as he grows in wisdom. Medical discovery has rendered obsolete discussions of "the struggle for existence," "the survival of the fittest," etc., and has demonstrated the plasticity of life and its ready response to alteration in environment. In this light the history of the world is being reread, and we are learning that civilization advances or recedes with the improved or diminished health of the people. The development of scientific medicine means the physical, intellectual and moral betterment of the race. That this is being recognized by the more intelligent of all nations is shown by the enthusiasm and energy now being developed in the antituberculosis crusade, the eradication of malaria, typhoid fever, uncinariasis, pellagra and other diseases. This most beneficent endeavor had its conception in the laboratory and clinical studies of scientific medicine. It is from these sources that it draws its sustenance and strength, and the nation that fails to foster medical investigations will surely recede in civilization. That this movement for the evolution of the better man has not yet met with an enthusiastic reception in our American universities must be painfully evident to those acquainted with the prevalent conditions in these institutions. Hundreds of teachers go out each year from our best universities without even the most elementary knowledge of either physical or mental hygiene. The examinations made in our gymnasia are for athletic purposes and concern themselves but little or not at all with the detection of incipient tuberculosis or

slight abnormalities of the heart. Men who are to become sanitary engineers are graduated without training in the bacteriologic examination of drinking-water. Those who are to become potent factors in the framing and execution of our laws go from their universities in ignorance of a nation's best asset, public health.

Please do not understand that I am saying these things in a spirit of captious criticism. I might have made these statements much stronger and still not overstep the truth. I have called attention in this mild way to these defects in order to point out that it is one of the functions of the university medical school to remedy them. Medical men in these schools should give lectures and demonstrations to the students of other departments on preventive medicine. The consequences of venereal diseases should be described without magnification, and with rational advice to the unfortunate. The nature of infection and the avenues through which it is spread should be discussed. Were I not a professor of hygiene I should say that every university student should have instruction in this branch and should submit to a most thorough physical examination twice a year and should he be found to carry any infection dangerous to others, whether it be pulmonary or venereal, he should be compelled to conform to just rules and regulations. I am aware that some effort is being made in these directions in universities, and the purpose of these remarks is to encourage it, for the need is great and the result will amply repay the service.

The academic professor has somewhat reluctantly learned to recognize that scientific medicine offers a legitimate field for research, and graduate students are now permitted to work in our laboratories. We should return this compliment and urge on our students a further and broader acquaintance with psychology, history and literature, for I would not imply that the medical school is the only department of the university that may confer favors.

Only a few days ago a professor of history applied to me for a medical man who might help him in the interpretation of documents bearing on a certain period of English history. It is good for all to change the viewpoint occasionally, for by so doing we extend the field of vision and gain a clearer perception. Interchanges of opinion among men of diverse callings should be mutually beneficial.

Medicine is taking its place among the exact sciences, and in doing so it discards the mantle of metaphysical speculation which it once wore. It consists of facts gathered from the various sciences that may be used in the prevention or cure of disease. It is no longer divided into schools founded on speculative dogma, or on theories evolved from the inner consciousness. Its triumphs are won only by patient toil in the laboratory and by exact observation at the bedside. It tolerates no *ipse dixit* and acknowledges no authority save that of scientific demonstration. The world has never been in greater need of its help than at the present time. The purpose of medicine is the evolution of the better man, free from disease, both inherited and acquired. In material rewards medicine benefits most abundantly those who do not practice it. In both prevention and cure it serves not only the individual, but his neighbor as well. Its future in this country is largely in the keeping of our universities and the administrative boards of these institutions have a duty to perform which they cannot shirk without detriment to the future welfare of the people.

Of the functions of the university medical school that lie outside the university I have time to mention only two, and with these I must content myself with scarcely more than mention. The faculty should take an active part in the education of the public in preventive medicine. This can be accomplished by popular scientific lectures, given orally and disseminated in print. It should support state, municipal and rural boards of health, be ready with the best advice concerning the securing of wholesome drinking-water, the most scientific methods of disinfection and the administration of wise pure food laws. In the second place, the laboratories and clinics of the school should be open to all legally qualified practitioners of medicine, who should feel that they are welcome to turn to these sources of exact information whenever they desire to acquaint themselves more thoroughly with the advances made in their profession.

SOME NEW FEATURES IN THE CLASS METHOD OF TREATING TUBERCULOSIS *

MYER SOLIS COHEN, A.B., M.D.

Consulting Physician to the Home for Consumptives, Chestnut Hill; Visiting Physician to the Philadelphia Jewish Sanatorium, Eagleville

PHILADELPHIA

THE CLASS METHOD OF TREATMENT

The class method of treating tuberculosis has grown in popularity since its inauguration in Boston by Dr. Joseph H. Pratt on July 1, 1904. There are now many tuberculosis classes in different parts of the United States, especially throughout the East. All present certain features in common.

Each patient keeps in a special book a daily record of his temperature, pulse, food, hours in the open air, etc. Special books have been printed for this purpose, costing five or ten cents apiece, although any small note-book will answer.

The patients are visited in their homes by a paid nurse or social worker or by a volunteer friendly visitor. The visitor inspects the house, shows the patient how to live, and sees that he carries out the details of the treatment. The financial condition of the patient and of his family is investigated. In some instances direct assistance is given from the class funds (when such exist), in others appeal is made to charitable organizations, fraternal societies, religious bodies and benevolent individuals. A few classes have no visitors.

A fund is frequently provided for furnishing tents, cots, reclining-chairs, blankets, record-books, thermometers, sputum-boxes, paper napkins, paper bags, milk, eggs, olive-oil, car-fares, etc., and for erecting platforms, balconies, awnings and screens, and to meet the expenses of moving the patient to a more suitable house. This money may be supplied by a church or by a hospital or by private individuals. The expenses of the Emmanuel Church Class from July 1, 1904, to May 1, 1907, were about $2,000. Many classes, however, have no such fund, the patients themselves having to furnish the things they need or being supplied through some outside charitable agency.

Once a week the patients assemble for examination, instruction and encouragement. The physician in charge sees each patient in turn. Sometimes he also talks to the assembled class and endeavors to stimulate a spirit of emulation among the patients, posting on a blackboard the greatest gains in weight and the greatest number of

* Read at a meeting of the Philadelphia County Medical Society, Dec. 22, 1909

hours spent out of doors. In some classes the members sit by themselves for about half an hour before the physician arrives and compare notes.

This weekly meeting is the distinctive feature of the class treatment. Its success depends largely on the personality of the physician in charge. In many instances, however, it does not differ from the ordinary dispensary hour, owing to the difficulty experienced by many class leaders in maintaining their enthusiasm while giving the same talk to the same patients for the eighth or tenth time, and in stimulating rivalry among patients who, after several months, desire to get well rather than to excel in detail.

The method of treatment adopted in the various classes depends largely on the individual views of the physician in charge and the conditions to be met. Dr. Pratt, of Boston, requires all his patients to sleep in the open air. Owing to the absence of yards, verandas or arch-ways in New York City, none of Dr. Niles' class slept out of doors. Some physicians demand of the members absolute rest; others permit graduated exercise and labor. Milk forms the basis of the diet in one class, three substantial meals in another. Drugs are little used in many classes. Some employ hydrotherapy; others do not. The same is true of the use of tuberculin.

THE UNIVERSITY OF PENNSYLVANIA TUBERCULOSIS CLASS

The tuberculosis class of the Medical Dispensary of the Hospital of the University of Pennsylvania has been in existence for over two years. Formed originally of the tuberculosis patients from my room in the medical dispensary it now receives from all the rooms in this dispensary, through the social service, tuberculous patients who are considered suitable for class treatment. There is no fund at the disposal of this class; nor is there any expense connected with it: it costs the University Hospital nothing.

The patients are visited at intervals by the social worker of the hospital or by volunteer friendly visitors. The social worker investigates the financial condition of each patient and, where necessary, solicits aid from charitable organizations or from the patient's relatives, employer, pastor or church. The visitor furnishes the class instructor with a written report of the home conditions and reports from time to time whether the instructions are being carried out.

The patients provide themselves with clinical thermometers, sputum-cups, paper napkins and paper bags, which they can obtain from the hospital at wholesale cost price. In a small note-book each keeps a daily record of the amount and character of the food taken, the number of hours spent in the open air, and in sleep, rest, exercise and work, the number of bowel movements, the amount and character of the cough and expectoration, the morning and evening pulse and temperature, etc.

The home conditions are modified according to the possibilities of the house and the patient's means. One member sleeps on the roof in an army tent. Another put his mattress on the floor of a flat roof and slept on it, bringing in the mattress when it rained. He could not afford a cot. A third improvised a tent in a corner of the yard by throwing an old carpet over the side and back fence and over a clothes-line. Still another used a pole instead of a clothes-line and a rubber sheet instead of a carpet, thereby being able to remain out in the rain. Members sleep on porches, in back kitchens and in bedrooms with windows wide open, top and bottom.

The class meets once a week. It is a class in fact as well as in name. The first hour is devoted to lectures or talks by the class instructor and his assistant; to lectures and talks given by the patients themselves; to a general clinical conference in which the patients' records are criticized by both the instructor and the class members, and instruction is given by both; to public investigations into cases that do poorly to determine the cause, from which lessons are drawn for the benefit of all; and to a quiz to find out what the members know and do.

During the second hour the patients are seen one at a time, their chests or blood examined as required, and the treatment modified to suit the individual case.

It is in the management of the first hour that the University of Pennsylvania Hospital tuberculosis class differs from all other classes. The talks by the instructor teach not only the management of the disease, but its prevention as well. Sometimes I give the same kind of talk I give when addressing a labor union or a home and school association. At other times, especially when a new member is present, I outline the life a consumptive should lead. On different days I may give short talks on fresh air, food, clothing, bathing, the avoidance of infection, etc. The reason for each measure advised is always explained. I impress on the patients the particular need for hygiene in the members of their families, and the importance of having them examined, especially on the first evidence of ill health. The possibility of the occurrence of tuberculosis without much apparent illness is emphasized. I find this very necessary, as the husband, or wife, or other relatives, or a friend, of a patient who is improving will often insist that the patient has not consumption, because the picture of health presented does not conform to their preconceived notions as to the appearance of the disease. At one time I used to encourage the patients in the belief that they would recover completely, but during the past year I have been telling them they never will be cured, although they may become strong and able to work. I constantly remind them that the germs will always lurk somewhere in their systems, ready to become active whenever the patients relax their hygienic régime, and I endeavor to make them realize that for them eternal vigilance is the price of health. This insistence on the continuation of care and precautions throughout the patient's life renders a relapse less likely.

INSTRUCTION GIVEN BY THE PATIENTS

After the patients had been told the same things a number of times I noticed that they seemed to lose interest. As it was necessary for them to hear the same story over and over again, I conceived the idea of varying the monotony by having the patients themselves occasionally give the talks. It did not take long to discover that, despite their frequent instruction, the patients' knowledge was not always accurate, clear, well ordered, or available. When a patient who is lecturing makes a mistake I invite criticisms by the other patients, frequently stopping the speaker and asking one of the others if he agrees with the speaker, and, if not, why not. I always supplement the member's talk, explaining in greater detail the matters that apparently have not been made clear and laying emphasis on what has not been sufficiently brought out.

In this way the patients not only have their own knowledge better grounded and freed from inaccuracies, but they become proficient in giving lectures on the prevention of tuberculosis and the management of the consumptive, and are thus able to repeat to their relatives and friends what they have learned in the class.

Sometimes the older members of the class instruct a newcomer, one speaking on the disposal of sputum, another on the separation of the eating utensils, another on living in the open air, and so forth, always, of course, under the direct guidance of the instructor. The new patient listens attentively to those who are themselves following out successfully the directions they are giving. When a fellow consumptive describes his own arrangement for sleeping in the yard and his scheme for keeping his dishes, knife, fork and spoon separate, these things do not seem so impracticable and visionary to the skeptical new patient as when ordered by the physician.

When the instructor examines the patients' records he comments favorably or adversely, and also invites criticism from the class. A patient who has done poorly is made to describe in detail his life during the previous week, while the instructor and class try to discover the reason for his going backward. His error then furnishes a text for a talk by the instructor or by a class member. In this way all profit by the experience of each and are prevented from making similar mistakes.

In order to make sure that the patients do not forget what they are taught, they are questioned from time to time as to what they are doing and the reasons for it.

RESULTS OF THE CLASS TREATMENT

The results of this class treatment have been excellent. Nearly all the patients showed improvement. Large gains in weight were common. A great many patients, including some in the third stage of the disease and one who had suffered from severe laryngeal ulcerations, resumed their occupations. One man with cavities, whose fever remained over 103° for weeks at a time and who at first had to be kept at absolute rest, was walking five miles a day without fatigue and gaining in weight when he left the class to enter a sanatorium. A youth, who, in addition to his pulmonary lesion, had had two different severe attacks of bone tuberculosis with necrosis, worked eight hours a day, and in addition during the summer played on a ball team every evening and Saturday afternoon. He even started to play football until I found it out and stopped him.

An active educational campaign is carried on by the class patients. By precept and example they instruct relatives, neighbors and friends. The following case illustrates the amount of good they can accomplish: A patient always told her husband what she learned in the class. He, in turn, repeated the talks to his fellow workmen, with the result that ventilators were installed in the building where he was employed and windows were raised, and at noon instead of resting in the warm stuffy office, as formerly, many of the clerks took long walks. Some of the employees tried to convert their wives to proper hygienic living, and when a wife objected to fresh air at night, got up after she had fallen asleep and gently opened the windows. This same patient visits other persons known to have consumption or supposed to have "a cold" or "chronic cough," sees that they are properly looked after, and gives them advice and encouragement. She is now one of the friendly visitors of the Philadelphia Society for Organizing Charity.

A patient who was operated on for hemorrhoids in one of the general hospitals had to teach the nurses there how to keep her dishes separate and how to prevent her from becoming a source of danger to the other patients.

Two of the members who took up tuberculosis nursing surprised the other nurses with their knowledge concerning the management of the disease and their skill in taking pulse and temperature.

CASES SUITABLE FOR CLASS TREATMENT

I regard every ambulant tuberculous patient as suitable for class treatment. A high degree of intelligence is not essential. The instructor should be able so to present the subject that any mind can grasp it. I do not recognize the existence of the "unteachable consumptive." Even careless and combative persons have been inspired and spurred to action by their association with earnest and enthusiastic fellow sufferers, all eager to get well and to help each other.

The only really unsuitable patients are those who should be confined to bed for long periods of time. Yet I have sometimes included such in the class when it was impossible for them to procure a physician or gain entrance to a hospital or sanatorium. They either get out of bed every week or two to attend the class or a relative brings the patient's record to the class meeting and reports on his condition.

Some classes graduate the members when the disease is arrested and the patients are able to return to work. It is my belief, however, that they should always remain in the class, even if they attend but once a month. A number of the members of the University of Pennsylvania Hospital class are working. In fact, it is often these persons in whom the process has been arrested that are most in need of supervision, as they tend to become careless and in consequence suffer relapses.

ADVANTAGES OF THE CLASS METHOD OF TREATMENT

For ambulant cases the class method is, to my mind, the best method of treating tuberculosis. Its educational value to the patient, to his family, and to the public cannot be excelled. The patient learns how to live and work so as to keep well himself and not infect others.

In the ordinary dispensary there is not the time for the oft-repeated instruction and the constant questioning to find out whether the lesson has been well learned. Without the patient's record and the nurse's report it is impossible to know how thoroughly the directions have been carried out. The inspiration and spirit of comradeship engendered by the class is missing in the ordinary dispensary.

In the sanatorium the patient lives in a tent or shack or other building especially adapted for the fresh-air treatment, with every moment of his life outlined for him. Returning home to unfavorable surroundings and to people unfamiliar with the management and prevention of the disease, left to his own resources and often lacking the ingenuity to adapt the changed conditions to the life he should lead, he only too frequently falls back into the old ways that first rendered him susceptible to tuberculosis, relapses, and dies. This outcome is rendered more likely when the sanatorium treatment is made unpleasant as well as rigorous, in order that the patient shall not want to remain long, but shall try to be cured in six months and to remain cured, so that he shall never have to return. In such a case the patient comes to regard his treatment as something disagreeable, to be endured for six months for the sake of being cured, but to be avoided ever after. When proper living is forced on an unwilling patient by the discipline of an institution it is not so likely to be followed, after the removal of restraint, as when the compelling force comes from the patient himself, from his own understanding of the importance of, and necessity for, this mode of life.

The class method of treatment should be carried out in every tuberculosis dispensary. The increase in effec-

tiveness will certainly justify the slight additional work or cost. Nor need there be any extra expense.

If class instruction were given to all sanatorium patients and if on leaving the institution they join a tuberculosis class, the good results obtained in sanatoriums would doubtless be more lasting and relapses less frequent.

I know of no other factor in the fight against consumption at once so available and inexpensive and withal so far-reaching and so lasting in its effects as the properly conducted tuberculosis class.

4102 Girard Avenue.

GONOCOCCUS VULVOVAGINITIS IN CHILDREN

WITH RESULTS OF VACCINE TREATMENT IN OUT-PATIENTS

B. WALLACE HAMILTON, M.D.

Physician to Children's Clinic, Presbyterian Hospital Dispensary; Clinical Assistant in Pediatrics, Vanderbilt Clinic

NEW YORK

Increased scrutiny in examining little children for admission to hospitals, asylums, day nurseries, kindergartens and other institutions has led to a surprising increase in the number of cases of gonococcus infection of the vagina seen in out-patients. The treatment of this class of patients, surrounded, as they generally are, by uncleanliness and poor hygiene, living in crowded tenements in families with no knowledge of the highly contagious character of the disease, has become a problem of much importance. A careful record has been kept of all the cases referred to the Vanderbilt clinic during the past three years, the total number of proved gonococcus origin being 344. These cases constituted a separate class in the department of pediatrics, and, through the interest of Dr. L. E. LaFetra, chief of clinic, additional facilities were extended regarding nurses and supplies. In the microscopic examination of smears from the vaginal secretion in all these cases, the organisms were decolorized when stained by Gram's method. All cases from which the smears showed either extracellular organisms, or those which were not decolorized, are excluded from these statistics. In many instances the first and second smears failed to show the gonococcus, but subsequent examinations revealed it. The doubtful or "suspicious" cases showing many leucocytes in the stained smears of the secretions are not here considered.

With the older children an endeavor was made to discover the extent of invasion by the gonococcus at the time of obtaining the smears, to find in what proportion of cases the parts beyond the hymen were involved and how deeply the gonococcus penetrated. A piece of glass tubing, 3 inches long, ¼ to 5/16 of an inch in diameter, its lumen at least ⅛ of an inch, was threaded with a string to whose middle was tied a cotton plug. The ends of the loop were then tied and the portion passing through the tube was drawn on so that the plug became firmly fixed in one end of the tube. The whole was sterilized and then introduced into the vagina as far back as the posterior cul-de-sac; the cotton plug, to prevent contamination by the secretion about the vulva, was then removed by drawing on the outer string, a platinum loop was then introduced through the lumen to the posterior cul-de-sac and a loopful of the secretion was removed.

It was possible to examine 40 cases in this manner. The very important result of these investigations was that in every one of the 40 cases gonococci were found to have invaded the upper part of the vagina.

In 15 cases in which the hymen was not intact, a visual examination of the cervix was made by means of a male urethral speculum and head mirror; in but one case the cervix was congested and slightly inflamed; in all the others the cervix was tightly closed and sealed by the normal mucous plug. The cervical canal, endometrium and their adnexa are apparently very seldom infected by continuity in little children.

AGE

In the 344 cases observed, the average age of the patients was 5.1 years; the youngest was 3 weeks; the oldest was 12½ years. One hundred and fifty-one patients were under 5 years, the remaining 193 being over 5 years of age.

ETIOLOGY

	Cases.
Discharged from hospitals	60
Referred from day nurseries and kindergartens	24
Referred from orphan asylum and foundling home	3
Mother giving history of leucorrhea	70
Mother giving no history of leucorrhea	75
Sleeping with sister giving history of vaginal discharge	28
Sleeping with sister giving no history of vaginal discharge	29
Sleeping with child giving history of vaginal discharge	3
Sleeping with child having ophthalmia	2
History of "attempted rape"	1
Unknown etiology	49

In 4 cases there was direct evidence that the father, mother and the child all suffered from gonococcus infection at the same time, the father having the original urethral infection.

In 8 instances there was direct evidence that the mother had had a discharge shortly after marriage. In these cases there was urinary evidence of a previous urethritis in the father.

There was one instance of infection of 4 children of one family; 3 instances of infection of 3 children of one family; 19 instances of infection of 2 children of one family. In 7 hospital cases and 4 which were not hospital cases, the infection had followed scarlet fever.

DURATION OF VAGINAL DISCHARGE PREVIOUS TO COMING UNDER TREATMENT

	Cases.	Average Age, Years.
5 years	3	8.2
4 years	4	7.6
3 years	2	8.1
2 years	9	8.0
1½ years	22	4.6
1 year	12	3.1
6 months to 1 year	52	4.5
6 months to 3 months	55	5.3
3 months to 1 month	42	5.9
Under 1 month	143	5.2

SYMPTOMATOLOGY

Most of the cases gave a history of burning micturition, without undue frequency, at the onset of the discharge.

Edema of the vulva was generally present, but of short duration after treatment was instituted.

Discharge was present in all cases, the majority having the thick, yellow purulent type. The length of time the discharge remained purulent depended greatly on the cleanliness of the mother, being in inverse ratio to her efforts. Clean underclothing and frequent bathing of the vulva shortened the time of the purulent discharge. A mucous discharge, so small in amount as not to stain the child's clothing, may be indefinite in its duration and contagion. This was proved in many cases in which the patients returned to the clinic, when requested by postal

card, after no treatment for a period as long as two years, the mother thinking the child cured when the clothing was not stained by the discharge. The gonococcus was present in 14 cases out of 61 patients who returned, with no treatment for periods from two years to six months. These 61 cases had previously been discharged as cured, after local treatment by irrigations.

COMPLICATIONS

Ophthalmia from auto-infection strangely enough occurred in but four cases; one of these resulted in marked corneal ulceration and partial blindness.

Arthritis was present, as far as ascertained, in only 3 cases; 2 involving the ankle and 1 the knee. It is presumable that more cases occurred, but it was difficult to obtain any such history on account of the cases being out-patients.

Nocturnal enuresis, not pre-existing, was present in 10 cases. The majority of these cases improved with local cleanliness.

Inguinal adenitis was very infrequent, occurring in only 2 cases. Neither one suppurated, subsiding under rest in bed and local applications.

No cases of cystitis or urethritis were observed, and there was not a single instance of pelvic or general peritonitis, though such cases have been reported by others.

In a number of the older children, masturbation was most likely a factor in prolonging the inflammation and the discharge.

TREATMENT

Printed instructions were given to each mother containing information and directions on the following points:

1. Vulvovaginitis in little children is a local contagious disease which requires treatment until the physician pronounces the child cured. It sometimes persists for months.
2. To avoid infecting other members of the family, the hands should always be washed thoroughly both before and after bathing the parts. The discharge, if carried to the eyes, may cause blindness.
3. The child should sleep alone. No one else should use any toilet articles, towels, napkins or wash-cloths used by the patient. All napkins, sheets, underclothing, towels and wash-cloths should be either boiled or immersed in a phenol solution before washing. Bath-tubs, basins and everything else coming in contact with the patient should also be washed with this solution.
4. It is advisable that all children with this disease should wear a napkin or pad, which should be changed daily.
5. Parents are cautioned not to allow the child to mingle intimately with other little girls. The child should not attend school or day nursery lest other children become infected.
6. The parts should be cleansed externally at least four times daily with a solution of borax or boric acid crystals, one teaspoonful to a pint of boiled water.

TREATMENT BY IRRIGATIONS

The following irrigations were tried:

1. Potassium permanganate, 1 to 4000 solution.
2. Condy's fluid,[1] 1 dram to a pint (this is a solution of potassium permanganate and alum sulphate, in which, by the combination, a larger amount of available oxygen is evolved)
3. Physiologic salt solution, 0.9 per cent.
4. Boric acid solution, 3 per cent.
5. Formalin solution, 1 to 1000.

The best results as regards cleansing were obtained with Condy's fluid.

The following instillations, in each of which two drams of the solution were instilled, were tried in conjunction with the irrigations:

1. Silver nitrate	1 to 5 per cent. solution.
2. Protargol	1 to 10 per cent. solution.
3. Argyrol	20 to 50 per cent. solution.
4. Ichthargan	½ to 5 per cent. solution.
5. Collargol	1 to 5 per cent. solution.
6. Ichthyol	1 to 10 per cent. solution.
7. Emulsion *Bacillus bulgaricus*.	10 to 50-per cent. solution.

Treatment by tampons of ichthyol, 5 per cent. and ichthyol 2.5 per cent. with iodin 1 per cent. and hydrastis 5 per cent., were tried with poor results.

Suppositories of 10 per cent. ichthyol were used with no permanent results.

Each mother was instructed in the clinic and at her home in the care of her own hands, both before and after the treatment, the preparatory cleansing of the vulva, the preparation of the douche, the sterilization of the catheter and the introduction of the catheter. This was done by actually making her give the douche in the clinic, by printed instructions and by the nurse visiting the home to see that the treatment was properly carried out. The nurse's visits were continued if the patient did not make a weekly visit to the clinic, as was ordered in all cases. When patients lived at a distance, postal cards were sent to them, and in this way a fairly close record of the attendance was kept. The danger of "overtreatment" was reduced to a minimum by frequent examinations of the child at the clinic.

The method of treatment was as follows: The child was placed in a dorsal position with the thighs flexed on the abdomen. The labia were held apart while the vulva was carefully sponged with an antiseptic solution (1 to 4,000 bichlorid of mercury). The sterile catheter attached to a fountain syringe, after being anointed with sterile lubricant, was gently introduced into the vagina. Two quarts of solution were used as the irrigation. Once weekly this routine was carried out in the clinic, and an instillation of one of the astringent silver preparations was given before the catheter was removed, by means of a glass hand-syringe. The foot of the table was kept elevated and the instillation was allowed to remain for a period of five minutes. Irrigations were given by the mother at stated intervals at home; if the secretion was profuse they were given daily, the intervals were made longer as the secretion lessened in amount. Irrigation solutions were tried at varying temperatures, ranging from 105 to 120. No apparent benefit was noted following temperatures over 110.

TREATMENT BY VACCINES

Following the results of Cole and Meakins[2] in the use of vaccine therapy in gonorrheal arthritis in adults, the record of 25 cases reported by Butler and Long[3] and 41 cases reported by Churchill and Soper,[4] the two latter in children with vulvovaginitis confined in hospitals, the same treatment was undertaken in out-patients. Eighty-four patients in all have been treated by this method. Because the patients were out-patients, because of the lack of time and because of the experience of others in

1. Condy's fluid, according to the National Dispensatory, is made by mixing 53 parts of potassium permanganate, 333 parts of crystallized aluminium sulphate, and 777 parts of hot water. On cooling, potash alum crystallizes out, which is separated from the liquid. The latter hence consists of a solution of potassium sulphate and permanganate of aluminium. The U. S. Dispensatory states that "all the available oxygen of the permanganic acid is utilized, whereas only 60 per cent. of this amount is utilized with the simple alkaline permanganate."

2. Cole, Rufus I., and Meakins, J. C.: Treatment of Gonorrheal Arthritis, Bull. Johns Hopkins Hosp., June-July, 1907.

3. Butler, W. J., and Long, J. P.: Vaccine and Serum Treatment of Gonorrheal Vulvovaginitis in Children, THE JOURNAL A. M. A., March 7, 1908, l, 744.

4. Churchill, F. S., and Soper, A. C.: Inoculation Treatment of Gonococcus Vulvovaginitis in Children, THE JOURNAL A. M. A., Oct. 17, 1908, li.

the use of the vaccine in adults, I omitted taking the opsonic indices, except in a few of the early cases. I do not deem it necessary to take the opsonic index, as there seems to be little relation of the index to the vaginal discharge.

Three separate vaccines were used:

1. Vaccine prepared from 16- to 18-hour blood-agar cultures from acute male urethritis, prepared after the method devised by Wright by Dr. R. V. Lamar of the Rockefeller Institute for Medical Research. The strength of the emulsion was 100,000,000 killed bacteria to 1 c.c.

2. Vaccine from a stock culture at the Presbyterian Hospital belonging to Dr. J. C. Meakins. The strength of this emulsion was also 100,000,000 to 1 c.c.

3. Stock vaccines prepared by Parke, Davis & Co., the strength of which were 50,000,000, 100,000,000 and 500,000,000 per cubic centimeter. No attempt was made to use the autogenous or personal vaccine from the patient's own organisms.

The injections were made under strict asepsis into the gluteal muscles with an ordinary glass hypodermic syringe. In using small quantities of the vaccines, sterile physiologic salt solution was employed as a diluent.

The number of vaccinations in the individual cases varied according to the age, severity and chronicity, the smallest number to accomplish a cure being four and the greatest number being eighteen.

In endeavoring to arrive at some conclusion regarding the dose of vaccine to administer to children, I selected an older child who had been affected for a long period and whose parents were more intelligent than the ordinary out-patient. A large dose was injected for three consecutive days, the child being put to bed under the constant care of a trained nurse. This child was 8 years of age and had been treated by the irrigation method for seven months. I injected 1,000,000,000 killed bacteria into her buttock at one dose each day, and had her temperature and pulse taken every two hours. She not only showed no rise of temperature, but no local reaction whatever and no subjective symptoms.

In the majority of cases, regardless of age (except under 6 months) I started the treatment by an injection of 50,000,000 every fifth day, increasing the dose by 10,000,000 until five injections were given, i. e., 90,000,000. The interval was now made ten days before another was given. Smears of the remaining secretion were taken and stained by Gram's method at each visit after the fifth injection. In most of the acute cases six injections were sufficient for a complete cure. In the cases of long standing it was necessary to use an increased number of injections, bringing the dosage up to 200,000,000.

No patient was pronounced cured unless free from gonococci by Gram's method, once weekly for four weeks and two additional examinations at intervals of two weeks. If no gonococci were present after these six examinations and no discharge evident, I considered the child cured. I have had 19 children return to the clinic after a period of three months following their sixth examination and found no evidence of the infection present.

Occasionally an extremely slight local reaction took place, but this in every case subsided in twenty-four hours. The reaction was never sufficient to cause any pain or tenderness. General constitutional disturbance never occurred following any of the injections. Temperature charts were kept of the cases, the temperature being taken twice daily by the visiting nurses, who visited the patient's home while active treatment was being given.

No distinct rise in temperature following an injection was noted in any of the cases. No local treatment whatever was used, except external bathing, if excessive discharge was present. No irrigations were given.

Of the 84 cases treated by vaccines, 16 were of long standing which had been treated by other methods. In the majority of these 16 cases permanganate irrigations were previously used. Gonococci were present in all before instituting the vaccine treatment. These latter cases required a larger number of vaccinations and an increased dosage.

RESULTS

Treatment.	Total No. of Cases.	Cured.	Uncured.	Lost.	Per Cent.
Irrigation	260	158	53	49	60
Vaccines	84	76	5	3	90

Average length of time under active treatment by the irrigation method, 260 cases, 10.1 months.

Average length of time under active treatment by the vaccine method, 84 cases, 1.7 months.

Of the 84 patients who were given the vaccine, 16 had been under the irrigation treatment for long periods. Three of these patients were not benefited, 1 did not return and 12 were cured. Some of those who did not respond to the treatment with one vaccine frequently did well on one of the other vaccines. In the cases in which there was no benefit, new strains were used; increased dosage, less frequent dosage and more frequent dosage, was tried but with negative results. The 5 uncured patients were all over 5 years of age, two of them being over 9 years. Contrary to the findings in some other published results, in young infants, under 1 year of age, three cures were obtained by the vaccines, the youngest patient being 3 weeks old.

CONCLUSIONS

Vaccine therapy has a place in the treatment of this infection in little children for the following reasons:

1. The short time required for a cure in over 85 per cent of cases.

2. The ease of administration of the vaccine; no special apparatus or knowledge of technic being necessary.

3. The vaccine is apparently harmless when used under aseptic precautions.

4. It is not necessary to take the opsonic index, with its complicated technic.

5. It eliminates irrigations, which direct the child's attention to its genitals, at times encouraging precocious masturbation. The frequent douches necessary in the irrigation treatment will, with the best care and gentleness, produce some injury when continued over a long period of time.

I wish to express my thanks, for the clinical cases referred to me from other hospitals and clinics, to Dr. R. V. Lamar of the Rockefeller Institute for Medical Research and Dr. J. C. Meakins of the Presbyterian Hospital, for cultures and vaccines, and finally to the visiting nurses' staff of the Vanderbilt Clinic, who have aided in making this record of cases possible.

125 West Seventy-sixth Street.

BOTTLED MILK AS A HEALTH MEASURE

AND SOME OF THE DIFFICULTIES ENCOUNTERED IN SECURING A PURE MILK-SUPPLY

J. MORTON HOWELL, A.M., M.D.
DAYTON, OHIO.

There is to my mind no more important matter for public consideration and action than the one of pure milk-supply, for the manifest reason that on this food product at least 50 per cent. of the present, and probably each succeeding generation, will depend for subsistence.

The best records up to 1910 show that ten bottle-fed babies die to one that is breast-fed. It has been demonstrated, within the past five years especially, that there is no reason to believe that the alimentary canal of the average infant is often incapable of digesting the food necessary for normal growth and development, when the food supplied, even though this is cow's milk, is of suitable quality and quantity; indeed, since strenuous hygienic lines have been drawn by men of our profession in some cities throughout the country the mortality rate has been lowered 20 per cent., and in a few cities, where the contest has been waged with great vehemence and intelligence, 50 per cent. salvation has been achieved.

If we would form anything like an adequate conception of the loss in mortality to child life, due wholly to filthy and adulterated milk, we shall need make some inquiry into statistical records along these lines. The reports of the U. S. Census Office for the year 1905 declare that the malign effects of artificial feeding of infants and the consequent impress made on the mortality returns become manifest by an examination of the vital statistics, but to gauge the exact ratio of infant deaths resulting from artificial feeding is very difficult. We have some very startling figures in this report, however. In a registration area with a population of 33,000,000 there were 105,553 deaths among infants under one year of age. Diarrhea and enteritis caused the death of 39,399 children in the first year of life. The U. S. government report for 1908 shows a total of 400,000 deaths of infants, and the report concludes that 200,000 of these could be prevented.

"About one-fifth of the total loss of life in the first year after birth," writes the Registrar-General of England, "takes place within a week of that event, while by the end of the first month the proportion reaches one-third, and by the end of the third month it exceeds one-half. From the first to the fourth month diarrheal diseases steadily increase in destruction."

In Paris and the cities in France having over 30,000 inhabitants the deaths from diarrhea by months per thousand infants under one year were as follows: June, July, August, September and October the average was 525, or more than one-half of all born during these months succumbed to gastro-enteric trouble.

According to Behring of Germany, of every 1,000 children born alive, 235 succumbed during the first year of life. Only 510 out of every 1,000 males born attain manhood. Not more than a third of those reaching maturity are found to be fit for military service. These sad facts he attributes very largely to the ulterior effects of infection derived in infancy from milk.

In the face of these astounding figures and facts we find that to better these conditions, which have cost and are costing us so dearly, is a problem of gigantic proportion and the elements entering into its solution are varied and complex.

In the first place, as soon as any one attempts to institute reform measures he meets with opposition on the part of the producers. This opposition is due to two causes—ignorance and a desire to receive the largest possible return for their product with the least amount of outlay. Of course, this second reason is really based on the first, ignorance, for it is now a well-known fact that our most up-to-date milk producers, those giving the most careful heed to all matters pertaining to sanitation, are really the men to whom the business is worth while from a financial standpoint.

While I have placed the milkmen, or rather their filth, first in the enumeration of factors in the death-rate of children, I do not regard them as our greatest foe, for they can be educated, coerced by law, or eliminated from the business by reason of non-compliance with the regulations affecting their product.

It has been my observation that time-serving politicians who have the appointing of boards of health, and their political allies, are the greatest menace to the furtherance of measures to prevent this onslaught on these helpless children. This condition of affairs prevails on the part of these office-hunters by reason of, first, their inordinate desire for office at any price—even at the cost of human lives; second, their ignorance of the grave questions involved in settling matters pertaining to higher sanitation, and, therefore, their utter inability (or, if not inability, unwillingness) to select men for this important work who have the intelligence, perseverance and firm decision of character to stand for the right at any cost. In other words, men are selected whom they believe they may dominate or control in the interests of their party.

Some of you may think I have overstated the condition that obtains throughout the state. Let me, therefore, refer to a few facts gleaned from the history of a certain municipality within this state having 125,000 people. The mayor stated before the council that the board of health of this particular city had been extravagant in that they had raised the salary of the clerk of the board from $1,000 to $1,500 and the salary of the health officer from $1,100 to $2,000 (although he, the mayor, was drawing $5,000 and his own clerk $2,000). He further stated that members of this body had exceeded their authority in that they had employed one extra meat inspector, making two for the entire city, with more than thirty slaughter houses to inspect, besides hundreds of markets throughout the city. This statement was made in the face of the fact that the statutes give to the board of health the right to employ as many meat and milk inspectors as they may deem necessary to carry on the work of sanitation. Not only do we find personified ignorance of the matter to which I have above alluded, but we find in this same municipality this same office-seeker siding with milkmen whose bacterial count runs into the millions, and the temperature of whose product was as hot as the streets on which it was being hauled during the days of July and August. I could go on *ad infinitum* touching these matters pertaining to this municipality, but suffice it to say that in the election the mayor received the votes of every man who was opposed to bottled milk, of every voter who desired to sell tuberculous and cancerous meat, of every citizen who had the right of franchise who was opposed to lifting his produce from the sidewalk a distance of two feet, so that it could not be contaminated by dogs, etc. He was sustained at the polls by every meat vendor who was opposed to screening his meat in the market to protect it from the deadly germ-carrying flies, and by every foreign and domestic voter who desired to supply so-called ice-cream, made from the most questionable

products in most questionable quarters and containing in many instances not more than 4 per cent. butter-fat. Those engaged in peddling this product in cones (the latter handled by individuals whose personal habits as to cleanliness were superlatively bad, and whose practices in this line of dangerous work had been prevented—stopped—by effective legislation) supported him. In the last place, although not least, all the citizens who desired to run their businesses 365 days and nights of the year, except, it may be, on election days, supported this mayor that they might run in open defiance of a law which he had taken an oath to respect and execute.

He and his friends refer to his administration as a "business administration." Who pays the price? Can you count the cost of such a business administration?

This last illustration may be a little foreign to the qustion at issue, and my only object in referring to it is to show, or perhaps further to emphasize, that if we would obtain the highest standard in matters of sanitation and life saving, the work of departments of health must be divorced as far as possible from politics as politics is now understood and practiced in many cities and towns throughout this country.

I am not criticizing the man or the citizen, but the politician and those who control his political action in adopting methods to further political ambition at the cost of human life.

It is argued and apparently believed by many of these politicians to whom I have referred that the work of the health officer is of minor importance and that young and inexperienced physicians are glad to take the place for $1,000 to $1,200. That may be true, but we know that such men as these are overpaid even at such salaries. The fact is that, if progress is to be made along these higher lines, the work demands the most symmetrical, experienced and generally well-informed man that can possibly be secured for this very important work, and it is an insult to our profession to ask that this work be done for such compensation as I have mentioned.

It occurs to me that a member of the board of health should have license to state the truth and the whole truth regarding these obstructions to the securement of better and saner policies along these lines or matters in question, for throughout this state each member serves without financial compensation, and his only reward can be a knowledge of a duty well performed, and no one, therefore, may truthfully say of him that he is disgruntled by discontinuance of service.

As to bottled milk as a health measure I beg to recite some experiences in my own city touching this question. Notwithstanding strong organized opposition, the Board of Health of the City of Dayton passed and successfully fought through the courts a bottling regulation or provision which, when executed, will save scores of young lives every year. Inasmuch as the provision is the first of the kind within the state, and for that matter in the United States, I have thought it might be of interest to give it here *verbatim*, with the salient points, as well as those specifically controverted.

SECTION 1.—No person, firm or corporation, except such as may sell for consumption on the premises where sold, and dealers in dairy products exclusively, shall sell, offer for sale, expose or keep with the intention of selling any milk or cream, or both, in the City of Dayton, Ohio, unless such milk or cream is kept, offered for sale, exposed for sale, or sold in tightly closed and capped bottles or receptacles of a similar character which may be approved by the board of health of said city; the owners and operators of dairies, and all drivers of wagons who sell milk or cream at retail or deliver the same from wagons, shall carry, sell and deliver such milk and cream only in bottles or other approved receptacles as aforesaid. All milk and cream so sold in bottles or other receptacles, not to be consumed on the premises where sold, shall be taken and carried to the residence of the purchaser or place where intended for use in the said bottles or receptacles, and not otherwise.

SECTION 2.—No milk or cream shall be sold, offered for sale, exposed for sale or kept with the intention of selling in or at any milk depot, creamery, store or other place of business, unless such milk depot, creamery, store or other place of business shall be equipped for keeping said milk and cream, and the same shall be kept therein, at a temperature of 50 degrees, or lower, Fahrenheit.

SECTION 3.—The provisions of Section 1 of this regulation shall not apply to *bona fide* dealers in milk and cream at wholesale who shall sell at any one time a quantity of not less than two gallons of milk or two quarts of cream, and who shall each have a separate room in which said milk and cream shall be kept or offered for sale, with a floor space at least ten feet square, with suitable ventilation, and provided also with an additional room in which shall be washed and cleaned all cans, bottles, or other receptacles, and utensils of every kind used in connection with said business, all of which shall be subject to the approval of the Board of Health.

In a suit brought to test the validity of this regulation the plaintiff contended that it was unconstitutional and void, that it was unreasonable, that it was burdensome, that it was partial and did not act with uniformity on persons of the same class, and that it made unjust discrimination between them, and that it destroyed vested property rights, etc. Of course, in our answer we denied all of his allegations, except that he was engaged in the dairy business. We held that the purpose for which the regulation was passed was one of sanitation and preservation of health, first, to secure to the customer an equal distribution of butter-fat or a requisite amount required by law, 3 per cent. (a result out of the question under the old method of dipping from the cans); second, to prevent the delivery of milk to customers in unclean vessels furnished by them; third, to prevent dirt, dust and disease germs from coming in contact with the milk.

The court held that, in so far as the first purpose was concerned, the seller is not required to distribute the butter-fat equally among his customers. If he brings his deliveries up to the standard required by the Revised Statutes, 4200-12, he has met all the law of the state demands. We contended, and do now contend, that it is not only unsafe for the dairyman to attempt legal fulfilment of the law by handling of milk in cans for retail, with the dipping process, but that it is unsafe to the customer, in that he is cheated of one of the essential factors in milk necessary for the life and sustenance of children, to say nothing of the dangers of contamination under the old process.

As to our second ground the court said: "It is certainly not fair to impose regulations on one man because of the negligence or folly of another" (referring to containers placed out by customers for the reception of milk). Then the court proceeded to the third reason or ground held by us for requiring bottled milk, to wit: that dirt, dust and pathogenic germs come in contact with milk in cans which are being continually opened for the dipping of milk. This was given by the board as the principal reason for the adoption of the measure in question and was held by the court, after hearing all the evidence, to be reasonable and in conformity to law and common decency.

One fly falling into the pail has been shown to be capable of introducing 250,000 germs into the milk. Now, in some of the streets and alleys through which these milkmen drive their wagons, and from which they dip here and there to supply their customers, are not garbage-cans full and running over with morbific matter, which in some cases has been standing for weeks, without municipal interference, at a temperature of this climate in July and August? In the poorer sections are not these garbage-cans the receptacles into which cuspidors have been emptied, filled with sputum deposited there from the cavities of lungs of individuals in the last throes of consumption? Flies which have fed thereon and which have their bodies and legs teeming with the germs of tuberculosis leave this morbific feast to follow the milk-wagon and sup on the fresh milk that has fallen from the filthy dippers; not infrequently they fall into the can as the lid is removed to supply the next customer.

It needs no argument to convince one that milk delivered in bottles may be as insanitary and as disease-producing as that delivered in cans. Milk is no cleaner than the dirtiest thing it touches. Any bottles, can, pail, cooler or other appliance, if dirty, is a source of contamination. I am presuming when dealing with the bottling measure that the cattle have been tested for tuberculosis. This, however, is presuming too much, for many, many herds throughout this state are alive with tuberculosis, as was one recently supplying milk to Dayton, where, when the test was made by the state examiner at our instance, every cow of the entire herd of thirty-one was condemned and destroyed; and I wish to add that this important question of state inspection must be taken up in a way that will eliminate this great danger.

Under this regulation, I presume that the barn, the source of water-supply, the utensils used in milking, the toilet of the milker, the condition of the cow as regards cleanliness, is all that may be desired, or has passed muster of the dairy inspector. I contend that the milk so secured and delivered other than in bottles is a most flagrant source of disease and death.

It is indeed, a most difficult problem to render a can which has been used for some time sterile. The seams and indentations about same are most difficult, indeed, if possible, to clean, whereas bottles have a smooth surface and, too, are transparent, so that much may be discerned by inspection both by the seller and the buyer. By adhering to the following technic (all other precautions which I have enumerated having been followed out) the dealer will place a product within the hands of the consumer that means salvaton to children who have hitherto been sacrificed to dirt and greed.

First, wash the bottles in pure cold water; second, scrub them thoroughly with a brush, using hot water and some good soap powder; third, rinse them again in hot water; fourth, scald them out thoroughly with boiling water (steam is preferable to boiling water and should always be used when at hand); containers should be subject to boiling water or steam at least from five to seven minutes at a temperature of 212.

The temperature at which milk is held after cooling has much to do with its quality and fitness for food, especially for infants and children. One germ in milk at a temperature of 70 degrees will multiply itself 250 times in twenty-four hours. It is practically out of the question to deliver milk in cans in retail without the temperature of the milk reaching 70 degrees and above during the summer months or heated term; this means a product running into the millions of bacteria, both common and pathogenic; whereas in bottled milk, if the precaution is taken to which I have alluded, and these bottles filled with milk placed in crates surrounded by ice, a delivery should be made at a temperature never exceeding 60 degrees.

It is remarkable what may be accomplished by legislation and execution of the legislation touching these matters of cleanliness.

Men who have hitherto appeared to be wholly indifferent to all these important points of sanitation will be found inquiring diligently what they may do to be saved. It is then that a campaign of education may be of great benefit.

Dairy inspectors should be instructed (and they should be high-class men, possessing scientific knowledge on this subject) to advise the producer along all practical and scientific lines touching his product. The producers should be supplied with the practical literature furnished by the U. S. government touching all points in question.

The health officers should meet the producers in their dairy association and show them that for them to take higher rank and furnish a clean and safe supply of milk is for them not only to enhance their own financial well-being, but thereby to become great public benefactors and saviors of their race.

The matter of the urgent necessity of great care in the handling of all food products by reason of the dangers arising from carelessness is emphasized in a well-known case reported by Dr. George A. Soper,[1] that of a healthy woman, a cook, who had lived in many different families during a period of ten years preceding 1907, in each of which there developed in from 3 to 4 weeks after the cook had entered on her duties, typhoid fever among members of the household. In all twenty-eight cases of this disease were traceable to this source. The cook was removed to a reception hospital for observation. She denied ever having had the disease. Examination of the blood and urine was negative, but the bowel discharges were found to furnish cultures of the typhoid bacillus. The mode of infection is clearly indicated by the woman's occupation, and is a sad commentary on her personal habits of cleanliness.

It should be insisted that examiners or dairy inspectors inquire, not only subjectively but objectively if necessary, into the personal physical condition and habits of the handlers of milk.

During my administration as president of the Board of Health of Dayton many cases of what should probably be regarded as criminal negligence along this line have come to my attention. Nothing but the closest scrutiny on the part of those in charge of the work will eliminate this source of danger.

This work of reformation is an arduous one and one fraught with much discouragement. None but the strongest heart and bravest soul need enter the ranks, but those who are clear of head and honest of heart need not fear for their reward; it may not come in dollars and cents, but it will come, and come with a sense of duty well done.

307 Reibold Building.

1. Soper, George A.: The Work of a Chronic Typhoid Germ Distributor, THE JOURNAL A. M. A., June 15, 1907, xlviii, 2019.

AN IMPROVED METHOD OF TRACHELORRHAPHY

WILLIAM L. WALLACE, M.D.
SYRACUSE, N. Y.

The operation of trachelorrhaphy has so often been unsatisfactory that the tendency has been to substitute amputation of the cervix. Repair of the cervix, however, is so simple; and, when the result is good, the patient is left in so much better condition than after amputation that it is well to search for the cause of the dissatisfaction and try to find some way to make the operation successful. The trouble with trachelorrhaphy is that the site of the repair is apt to be so thin that it cannot possibly withstand another labor. A section through such a repaired cervix would show a cavity barely closed at the side. This poor result is brought about, I believe, by the faulty method of through-and-through stitching by which the side of the cervix is compressed to thinness, the ligature drawing the mucous membrane within the canal almost into apposition with the mucous membrane covering the cervix.

The usual repair is made by cutting through and removing the scar tissue at the site of the old laceration, denuding the anterior and posterior lips from the depths of the angle to the apex of each lip, and closing the wound with several through-and-through stitches. Some surgeons use catgut, but many find that, on account of the narrow apposition, the catgut will not hold, and hence use silkworm gut or silver wire. Such a repair looks well, but the poor result is evident if, for any reason, it should be decided to amputate the repaired cervix. While the denuded lips were from one-half to three-quarters of an inch wide, the repair is only from one-eighth to one-quarter of an inch (Fig. 1). In such a cervix, the eversion, to correct which the repair was made, quickly returns with its unhealthy discharges, and the next labor tears open the double layer of mucous membrane which alone has held.

What steps can we take to make the repair a success? How can we bring together the broadly denuded muscular surfaces of the anterior and posterior lips without narrowing them? A repair of the cervix, I believe, should follow the method of layer suture so successfully used in closing the abdomen. I use a continuous suture in two layers. The needle is entered through the outside of the cervix near the angle of the wound (Fig. 2, a). This suture is carried very deeply back and forth into the muscular layer of the anterior and posterior lips, coming out at the front of the opposite lip (Fig. 2, b). Each stitch is pulled up as the operation proceeds, broadly approximating the depths of the wound. The suture goes to the edge of the mucous membrane of the cervical canal, passing through the superficial parts only at the points of beginning and ending. The superficial layers are then drawn together by running back the same continuous suture, coming out opposite the point of starting (Fig. 3), where the two ends are tied together. An amputated section of this cervix will show that it is equally thick in all parts and therefore properly repaired.

I use No. 1 chromic catgut, no tension on the stitches being required to hold the broad surfaces together. In case of bilateral laceration, I split and denude both sides, and then repair completely first one side and then the other.

In many cases it will be found that the cervix shows on one side a slight laceration without scar tissue, while on the other side there is a deep laceration causing hypertrophy, eversion and erosion. In these cases I do a unilateral repair, a wide wedge being removed from the bad side by which the hypertrophied parts are virtually amputated. While this will place the os uteri slightly on the side that has not needed repair, the operation is done with half the danger and in half the time required for other procedures, leaving perfect drainage with no possibility of stenosis. The cervix soon straightens itself and within a few months the os will be found at the apex. In many cases a deep wide unilateral operation is much better than a bilateral repair.

This method of layer suture on one or both sides is very simple and rapid and the result has been wonderfully satisfactory in my experience.

1000 East Genesee Street.

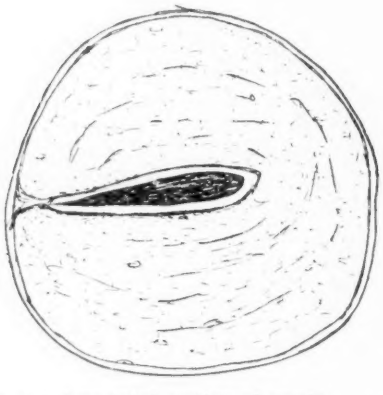


Fig. 1.—Amputated section of cervix, showing poor result of right unilateral repair.

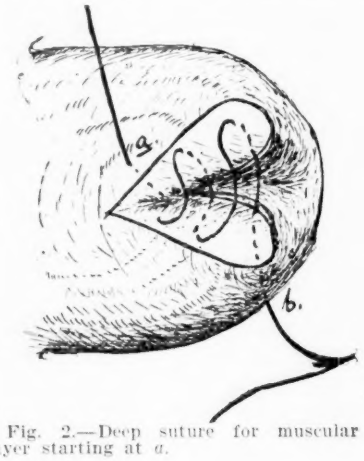


Fig. 2.—Deep suture for muscular layer starting at *a*.

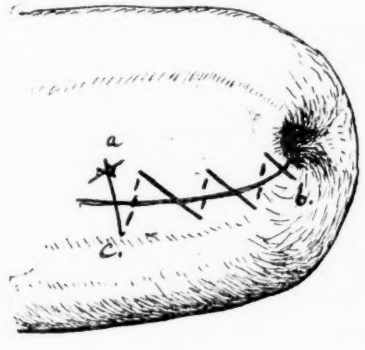


Fig. 3.—Superficial suture running back from *b* to *c*, and then tied with end *a*.

FORMALDEHYDE POISONING

HENRY F. HOYT, M.D.
EL PASO, TEX.

History.—A. K., a Japanese merchant, aged 24, had been given some medicine to take after meals—"a teaspoonful in a glass of water." He put the required amount into a glass and looked about for some water. He was in his place of business, into which he had just moved, and seeing on a table a gallon bottle labeled "Stafford water," a mineral water much used here, left by the former occupant of the premises, he filled the glass from the bottle and, as is often the case when taking medicine, did his best to gulp down the mixture as quickly as possible. He succeeded in swallowing over half of it before

he discovered that something was wrong. He called for help, and as I was near I reached him in about a minute.

Treatment.—In that short time he was already in a state of shock with convulsions and only partly conscious. His assistants, all Japanese, were excited almost to frenzy, a condition which played such havoc with their limited English vocabulary that it was impossible to ascertain what had happened. I decided that I had to deal with a case of poisoning but of what nature or kind I had no idea. Seeing some salt on the table and a kettle of hot water on the stove I ordered them to make him swallow as much salt water as possible and to rub him vigorously at the same time, while I rapidly prepared a hypodermic of .0065 gm. of apomorphin. By the time I administered this they had succeeded in getting down about a pint of the solution. In a short time the emetic acted vigorously and continued to do so until we had refilled and emptied his stomach several times.

His tongue, mouth and throat were blistered but there was nothing in the odor of the stomach contents to give a clew as to the kind of poison he had taken. After he had rallied from the shock and the others had calmed down enough to talk coherently, I got the facts of the case. I removed the cork from the bottle of supposed "Stafford water," smelled the contents and my diagnosis was made. The "water" was a solution of formaldehyde left by the former tenant and was found to be the standard 40 per cent. mixture. From the patient's statement later he must have swallowed at least 100 c.c., possibly 120.

He developed a severe gastritis, with very sore mouth and throat, but made an uneventful recovery in about ten days.

This is the only case of formaldehyde poisoning I have ever seen and I find very little about it in the literature at my command. It is my opinion that, had the stomach not been full when he took the dose and had it not been emptied so promptly, the case would have terminated fatally.

A PECULIAR CASE OF MERCURIAL POISONING

BURNLEY LANKFORD, M.D.
NORFOLK, VA.

The following case is submitted because of the unusual method by which the mercury was introduced into the system:

History.—Mrs. -- sent for me hurriedly one afternoon; she was seen first at 7:15. She was very nervous, crying, and said that she had awful pain in her head and that fearing that she was pregnant, because the week previous her menses had lasted two days instead of four, she had followed the advice of a woman of her acquaintance, and two hours before calling me had inserted as deep as possible into her vagina two mercury bichlorid tablets (gr. 7.3 each). She had had no idea that they would hurt her, but she was having much pain and thought she was swollen. An examination was at once made. Each labium was found to be at least an inch thick, very red, tense and shiny, having a brawny feel. With some difficulty, owing to the marked swelling, one finger was introduced, and the entire vagina and vaginal portion of the cervix were found to be in the same brawny state. No trace of the tablets was found. No one was present to assist, but realizing the value of time I made a strong soap solution (a gallon), emptied therein the contents of a box of cooking soda and gave her myself a copious vaginal douche; then, using the handle of a bent tablespoon as a Sims speculum, with the patient in knee-chest position, the whites of five eggs were put into the vagina. The swollen labia served to retain the albumin. The white of one egg will neutralize about four grains of bichlorid; therefore the albumin was present in sufficient quantity, though too late, to neutralize most of the bichlorid; it seems likely, however, that the subsequent failure of the vagina to slough was due to the albumin. A hypodermic injection of morphin was given to relieve the intense suffering. Before the morphin was given the patient was beginning to be nauseated, owing, it seemed to me, to the excretion of the bichlorid into the stomach, and so as fast as she would vomit she was made to drink a pint or so of water which in a few moments she would vomit again. The case was then turned over to her family physician, mine having been an emergency call, and I saw the patient no more for seven days.

Examination.—The change in her was pitiful. She had been an unusually pretty woman, but though I had known her for years, I could not have recognized her in the woman before me. The entire, face, neck and chest, for several inches below the clavicles, were tremendously swollen, the eyes practically closed, the tongue so swollen and protruding that the lips were forced far apart. The tongue and buccal mucous membrane were a grayish black, and were sloughing; the teeth were loose enough to have been spit out; the breath emitted a most horrible odor. There was not much flow of saliva at this time. The bowels were moving very frequently, small, bloody, mucopurulent stools; for the passage of each, the patient would jump out of bed, and had done so for a week. Her mind was fairly acute, though she could not articulate because of the swelling. She did not complain of pain in her abdomen, nor was she tender or tympanitic at any time while under my observation. Pulse at this time was 130, temperature 101.5 F.

Treatment.—She had been a very hard patient to manage, so the nurse said, and would not submit to any treatment nor would she try to swallow. She was given a very plain talk about the seriousness of her condition and after that she was more amenable. The following treatment was instituted: By means of a 6-ounce glass syringe with a long slender tip, the buccal cavity was irrigated every hour with the following solutions, in the order named: chlorate of potash, phenol 1 per cent., hydrogen dioxid 25 per cent. Much débris was removed each time; hot wet packs were given every four hours; vaginal irrigations with normal salt solution every twelve hours; rectal irrigations of normal salt solution every four hours. The undiluted white of egg and milk, which the patient was soon able to swallow fairly well, was given by mouth. Phenolphthalein in emulsion (8-grain doses) was given every eight hours.

Clinical Course.—Following this treatment the patient improved for the next twenty-four hours. The foul odor of the breath was much less noticed, the buccal mucous membrane became cleaner-looking, the swelling subsided somewhat, the temperature came down to normal, the pulse to 100, the skin reacted nicely, the bowel movements became more watery, and with less tenesmus, and there seemed to be more urine. The urine was never examined or measured because it was always passed with the stools, and the patient never would submit to the catheter; she would tell the nurse when she voided, however, and that (with the absence of uremic symptoms) was the only guide we had to the amount of urine that was being passed. There was no retention in the bladder. These hopeful symptoms continued for about forty-eight hours, the swelling continued to subside, the pulse retained its good quality; the patient became able to swallow well and drank much water. The morning of the tenth day, however, her condition changed; the pulse grew quick and soft, the skin would not sweat, the secretion of urine seemed to have stopped and she no longer attempted to get up for her bowel movements. Her mind grew cloudy and she began to be drowsy, though she had previously slept very little. After another consultation, she was given strychnin, spartein, digitalin, caffein and sodium benzoate, but nothing seemed to avail. The drowsiness deepened into sleep, the sleep into coma from which she could not be awakened. Death ensued on the eleventh day after the poison was introduced. There were no convulsions, and death seemed to be due to heart failure. No autopsy could be obtained.

I have not been able to find report of such a case. It is hoped that this case may serve as a warning to the woman who is always advising her neighbor how she can "bring herself around."

505 Mowbray Arch.

LINEAR AND SUBPERIOSTEAL FRACTURES OF THE LONG BONES IN CHILDREN

WILLIAM PEARCE COUES, M.D.
Surgeon to the Boston Dispensary
BOSTON

The importance of this class of fractures is largely due to the fact that without a good *x*-ray picture they may remain unrecognized. Children are peculiarly liable to them. The necessity of a skiagraph in all cases of injury which in the past have been regarded as sprains and "bruises over the bone" is so well recognized as hardly to require comment. A skiagraph (two views) should be taken in all cases of injury to the extremities in children, even if a careful clinical examination is negative for fracture. The number of fractures of this class that remain unrecognized through failure to have an *x*-ray must be great, and especially so in the field of general practice, in which sometimes an *x*-ray may not be obtainable. Crepitus, abnormal mobility, and often swelling and ecchymosis may be absent in these cases of linear cracks and subperiosteal fractures in children. Without an *x*-ray a diagnosis can, however, be made in most cases from signs which are generally present, and the overlooking of which leads to error in diagnosis.

Careful examination will reveal very definite and valuable information. Localized tenderness along the seat of fracture is present, but, these fractures sometimes being such small affairs, longer and more careful search for them will have to be made than in ordinary fractures. The tenderness, when found, will always be increased by the classic test of lateral traction between fixed points above and below the seat of fracture. In long fissures or linear fractures, rotation will always be painful, and more so than any other movement. The relaxation of etherization will not aid our surgical sense in arriving at a diagnosis in the case of these often small and trivial solutions in the continuity of bones.

CASE 1 (Clinic No. 10800).—A girl of 5½ years was seen at the Surgical Clinic, Boston Dispensary, April 27, 1909. The history was as follows: One day before she had fallen off a bed, injuring the right wrist. Examination showed no swelling or ecchymosis, very little tenderness, and some disability in using arm. Most of what little pain there was on examination the child referred to the wrist. The bony prominences were in perfect relation. There was no deformity, crepitus or abnormal mobility. An *x*-ray of the wrist was negative. Another examination showed slight, but definite tenderness over both bones of the forearm, and rotation of the radius was painful. Another *x*-ray was taken of the forearm and the picture showed a fracture of both bones, one transverse of the radius, and the other a slightly fissured linear fracture of the ulna. Treatment, antero-posterior and internal angular splints. Good functional and anatomic results.

CASE 2.—A little girl of about 3 years was seen after a fall of a few feet from a chair onto the right foot. There was lameness and pain in the right foot and ankle. There was no pain or swelling of the leg. Examination of the ankle was negative. A fixation dressing was applied and the child kept off her feet. Pain and immediate disability followed attempts at weight bearing on the right foot. All symptoms, however, were referred to the ankle. A careful examination of the whole tibial region was now made. No swelling, crepitus, or abnormal mobility was found, but an area of considerable tenderness over the tibial crest, which either was not present or had been overlooked at the first examination. The *x*-ray showed a linear fracture of the tibial shaft, a mere "crack" in the bone. There was nothing found wrong with the ankle. Treatment, plaster-of-Paris fixation. Good result.

CASE 3 (Clinic No. 8624).—A boy of 13 was seen at the surgical clinic, Boston Dispensary, April 3, 1908. The history was as follows: While playing ball at school that morning he had fallen, twisting his left ankle, the weight of the body coming on the ankle. Examination of the ankle was negative. There was no swelling or deformity of the leg, no crepitus or abnormal mobility, or displacement. The only sign present was an area of tenderness along the tibial crest, which was increased on rotation. The *x*-ray showed a linear fracture of the tibia running down subperiosteally to just above the ankle. Treatment, plaster-of-Paris fixation, recumbency for a time. Good anatomic and functional result.

Treatment of these cases should be of the simplest sort that is adequate to maintain fixation until union is solid. The result anatomically and functionally should in most cases be perfect.

A rough imitation of a subperiosteal linear fracture may be obtained by painting a small piece of wood—a wooden tongue-depressor answers well—with flexible collodion. After drying, a coating densely adherent to the wood is left, which represents periosteum. The wood is now held in a clamp and pressure exerted on its long axis. After a certain amount of pressure a linear crack appears in the wood, but the collodion envelope (periosteum) remains intact. If the pressure is increased the collodion envelope (periosteum) is torn through and we have an ordinary closed fracture.

CONCLUSION

Definite, localized, and well-marked points of tenderness may be found in most of these cases of linear cracks and subperiosteal fractures in children if long, careful search is made for them. Such findings, with increase of pain on firm pressure and rotation with all the classic signs of fracture absent, generally means a slight linear fracture. A diagnosis can in most cases be made clinically. An anesthetic will not help in the diagnosis of these fractures. An *x*-ray should be taken whenever possible. In all cases of injury in which fractures of this nature are suspected, the bony landmarks are in perfect position, and there is no displacement, rough manipulation and forcible testing for crepitus are uncalled for and may do harm by increasing the fracture, which, as the position is perfect, we should avoid particularly.

In these cases children often complain of pain and trouble at a distance from the real seat of fracture. The *x*-ray examination should not be confined to the part complained of, but should include the neighboring long bones as well.

903 Boylston Street.

PROCTOCLYSIS AND A NEW INSTRUMENT

EUEIDAS K. SCOTT, M.D.
BOISE, IDAHO.

Proctoclysis unquestionably offers to the physician and surgeon a valuable means of relieving human suffering and aiding the vital powers to resist and overcome disease.

Of the two methods—continuous flow and drop method—of administering salt solution by way of the bowel, the drop method offers the preferable technic to the physician, and more comfort to and more ready acceptance by the patient.

These objections to the continuous flow method present themselves:

1. Many conditions of rectum, lower bowel and pelvis make pressure of a rectum full of fluid very uncomfortable to the patient and the fluid difficult to retain.

2. Many severe general conditions of patients cause a relaxed sphincter, and thus fluid escapes.

3. The regurgitation of intestinal contents into the apparatus means inconvenience and difficulty in thoroughly sterilizing it.

4. It requires a proper connection and tubing for escape of gases.

These objections are practically overcome by the drop method together with a small glass sight tube and the hard rubber regulator, as shown in the illustration.

The sight tube obviates the necessity of withdrawing the rectal end to note the working of the apparatus. The flow of the liquid can be observed readily without an expensive gauge. Gravity and varying the size and shape of the regulator will regulate the rate of flow from

Hard rubber regulator and glass sight tube for proctoclysis.

a constant stream to a few drops per minute. A pint and a half of fluid every two hours serves best for general conditions. That means about three drops in two seconds. By timing the rate of drops the amount per hour is noted at once. Back flow into the container is practically eliminated, as the bowel will absorb it at that rate, and there will be no excess unabsorbed.

Gases can readily escape through the apparatus when the sight tube and regulator are used. The apparatus does not become contaminated with the contents of the bowel.

Patients have almost perfect ease and comfort with this method—a point of no trivial concern to the medical man. The results are more definite and uniform, as a constant, perfect working apparatus is assured and, combined with an irrigating thermometer, is undoubtedly a most valuable contrivance for proctoclysis.

417 Overland Building.

AN UNUSUAL PRODROMAL MANIFESTATION OF IDIOPATHIC EPILEPSY

ALFRED GORDON, M.D.
PHILADELPHIA

Aura preceding an epileptic discharge may be motor, sensory, psychic, or psychomotor. Among the various well-known psychic "warnings" of an oncoming seizure the one here described presents such rare features that its placing on record is warranted.

A boy of 12, suffering from essential epilepsy since the age of two and being affected at irregular intervals with attacks of grand mal and petit mal, began to develop an unusual aura preceding the major seizures. Two days before a fit occurs he becomes exceedingly restless, although he is habitually morose, quiet and of a pessimistic disposition. The restlessness is followed by a desire to embrace and kiss any one who enters the house.

He spends his time in ceaselessly throwing his arms around the neck of every person in the house, be it relative, stranger, or servant in the kitchen. The embrace is accompanied by rough kissing in which he repeats the act a great many times and ends with biting the kissed spot of the face. The kissing is only interrupted by eating and sleeping. But as soon as he is done eating or wakes up after a sleep he resumes his peculiar occupation. He does not hesitate in doing so while on the street, and for this reason he is kept strictly in the house until the attack of epilepsy has passed.

The act of kissing is sometimes replaced by the act of laughing. The laughter is then unusually loud and unusually long and, according to his mother, it lasts sometimes five minutes. No measure employed at that time to arrest the "enervating" act is of any avail. He must go on and not be interrupted. As soon as he is done laughing he resumes his act of embracing. Curiously enough, the laughing, embracing and kissing, in spite of being prolonged and almost without intervals, do not apparently exhaust the patient. At the time of his meals his restlessness ceases and at 7 o'clock in the evening he asks to be put to bed.

During the forty-eight hours of this unusual activity the boy realizes the situation and is well aware of his acts. He converses rationally, answers questions, but when asked to cease his actions, he claims that he makes efforts, but is hopelessly incapable to arrest them. He "must go on," "something forces" him to do so, he says. His mother also states that sometimes (not in each attack) the kissing is substituted by striking or slapping. He seizes every person in the house and strikes them several times in succession with his open hand over the back or else over the face. His little brothers or sisters are the usual victims of this performance.

It is also interesting to observe that during the time he is indulging in the peculiar propensities mentioned, his appetite is extremely great so that no amount of food can satisfy him, and he excretes an unusual quantity of urine with a remarkable frequency (almost every half hour).

The unusual psychomotor manifestations described above last forty hours, after which he suddenly falls unconscious and goes through all the phases of a genuine major attack of epilepsy, viz., tonic and clonic convulsions, frothing at the mouth, biting of the tongue. An attack is followed by a profound sleep. After he regains consciousness and the habitual mental hebetude disappears he is able to recall the peculiar prodromal phenomena. He feels much embarrassed for his singular behavior, for embracing and kissing so profusely strangers and relatives. He then becomes depressed for a period of five or six days.

The prodromal manifestations described made their first appearance only at the age of nine and they appear only before an epileptic seizure. The latter occur irregularly, but not more frequently than once in three or four months. The appearance of the peculiar phenomena which never fail before a fit—and especially their regularity—is an excellent warning for the patient's relatives so that they are able to take the necessary precautions to avoid accidents.

The interesting part of this observation lies in the manifestations of the unusual symptoms preceding an epileptic convulsion, *viz.*, in the exaltation of physical and mental functions, in the regularity of the prodromal manifestations and, finally, in the fact that the latter were accompanied apparently by a complete lucidity of mind, but by a complete inability to control them on the patient's part. The actions were automatic, uncontrollable, impulsive.

Can such actions be considered conscious? Although the patient was able to answer questions and, according to the mother, knew what he was doing, nevertheless the automatic acts could hardly be considered conscious. The automatic nature of the acts preclude voluntary efforts and therefore they are unconscious or subconscious.

Extreme restlessness with exaltation of all functions with apparent lucidity of mind are characteristic of the maniacal phase of manic-depressive insanity.

Was the condition in the present case an analogous occurrence?

Could the singular manifestations preceding the major attacks of epilepsy be considered as attacks of *petit mal*? I am inclined to accept the latter view.

1430 Pine Street.

THREE CASES OF INFECTION WITH THE DWARF TAPEWORM (HYMENOLEPIS NANA) IN CHILDREN

OSCAR M. SCHLOSS, M.D.
NEW YORK

During the past eighteen months I have encountered 20 cases of infection with the dwarf tapeworm in children, 14 of which have been reported in a previous paper.[1] Three of the six additional cases encountered present points of sufficient interest to warrant an additional report.

Since the paper of Stiles[2] in 1903, a number of cases of infection with *Hymenolepis nana* have been reported in this country. Stiles predicted that the dwarf tapeworm was going to prove a common American parasite, and from my experience it is one of the commonest intestinal worms in children.

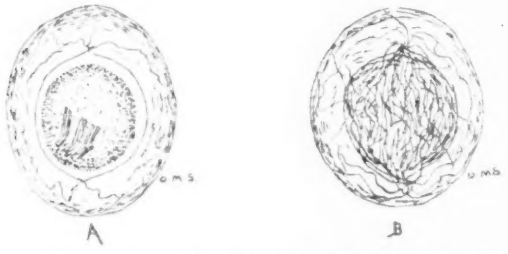


Fig. 1.—Ova of *Hymenolepis nana*, greatly enlarged; A, showing embryo; B, superficial focus showing filaments.

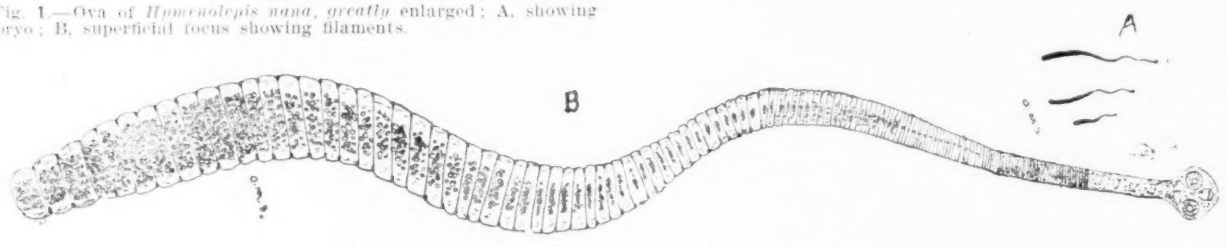


Fig. 2.—*Hymenolepis nana*; A, actual size; B, enlarged.

The dwarf tapeworm is the smallest cestode parasite of man, and great numbers of the worms are usually present in the infected cases. In the cases in which I have been able to make an estimate, the number of worms passed after treatment has ranged from 50 to over 2,000.

The presence of this parasite is indicated by the occurrence of the characteristic ova in the feces. The ova are usually colorless, though they may assume a slight brownish tint when they have stood in contact with the feces for some time. They have a slightly oval outline and are easily seen with the low power of the microscope (Leitz objective No. 3 or an equivalent). The eggs have two distinct membranes and within the inner is the embryo, which contains six booklets. The inner membrane has a slight projection at each pole, from which delicate filaments arise and ramify in the space between the membranes.

It is beyond the scope of this paper to attempt a description of the parasite, but the reader is referred to the text-books on helminthology or to the references given.[3]

CASE REPORTS

CASE 1.—*Patient.*—P. G., male, aged 3½; born in New York City; Italian parentage. There was nothing important in the past history. The patient had not been entirely well for over a year. He had become pale and listless, though there was no apparent loss of weight. He was restless during sleep and frequently cried out during the night. The appetite was poor, the bowels constipated. The patient suffered from frequent attacks of abdominal pain which was referred to the epigastrium. The pain was of moderate severity and for several months two or three attacks had occurred each day.

Examination.—This showed a pale, fairly well-nourished child who did not appear acutely ill. The temperature, pulse and respirations were normal. The mucous membranes were pale and there was slight puffiness beneath the lower eyelids. The physical examination was otherwise negative. The feces contained numerous ova of *Hymenolepis nana*. The hemoglobin was 55 per cent. (Sahli hemometer) and the number of red blood cells was 3,900,000 per cubic mm. A differential count of 500 white cells gave the following percentages: Polynuclear cells 26.8 per cent., lymphocytes, 45.6 per cent., large mononuclear and transitional cells 16 per cent., eosinophil cells 10.9 per cent., basophil (mast) cells 0.2 per cent.

Treatment and Course of Disease.[4]—The usual treatment was given and numerous dwarf tapeworms were passed. Two thousand worms were counted but there were easily twice this number. Twenty days later the feces contained no ova. The child has shown great improvement. There has been no recurrence of the abdominal pain and sleep is normal. The patient is still (six weeks after treatment) rather pale.

CASE 2.—*Patient.*—W. W., male, aged 5; was born in New York City of Irish parentage. The past history was negative. Two months before admission the patient began to lose weight and to be pale and irritable. He slept poorly and would frequently awake and cry out during the night. He had suffered from attacks of abdominal pain for about five weeks. The pain was referred to the epigastrium and would often occur several times a day. These symptoms remained the same until three weeks before admission when the patient had a general convulsion. All four extremities were affected; the convulsive attack lasted about three minutes and was followed by unconsciousness for about fifteen minutes. Similar convulsive attacks occurred two weeks and one week before admission.

Examination.—The child was moderately well nourished, with slightly pale skin and mucous membranes. With the exception of adenoid and tonsillar hypertrophy there were no abnormal physical signs. The hemoglobin was 70 per cent. (Tallquist scale) and a differential count of 500 leucocytes as follows: Polynuclear cells 45 per cent., lymphocytes 40.3 per cent., large mononuclear and transitional cells 7.6 per cent., eosinophils 7 per cent. A moderate number of the ova of *Hymenolepis nana* were found in the feces.

Treatment and Course of Disease.—The routine treatment was given. About 300 dwarf tapeworms were expelled and twenty days later no ova could be demonstrated in the feces. There has been no recurrence of the convulsions and the other symptoms have disappeared (one month after treatment). The mucous membranes are still slightly pale.

CASE 3.—*Patient.*—C. G., male, aged 6; born in New York City. This patient is a brother of Patient 1. The symptoms

1. Archives of Pediatrics, February, 1910.
2. Stiles: New York Med. Jour., 1903, lxviii, 877.
3. For a complete description of the parasite and a review of the literature, see Ransom, Bull. 18, Hyg. Lab. U. S. P. H. and M.-H. S., 1904.
4. The treatment used in these cases was that usually followed in the case of the larger tapeworms. Oleoresin of malefern was used and was given in three to five doses. One half to one dram is usually sufficient and has, in my experience, been without ill effects. A single treatment is not always sufficient. It is possible that the heads of some of the parasites are left in the intestine, or parasites in embryonic stages may be present, which are unaffected by the treatment.

in this case were almost identical with those in Case 1. The attacks of epigastric pain were less frequent and not so severe. The appetite was poor, the bowels constipated.

Examination.—The hemoglobin was 60 per cent. (Sahli hemometer). Five hundred leucocytes were counted and were in the following percentages: Polynuclear cells 49.9 per cent., lymphocytes 22.5 per cent., large mononuclear and transitional cells 13.8 per cent., eosinophils 13 per cent., basophils 0.4 per cent.

Treatment and Course of Disease.—Three hundred dwarf tapeworms were expelled by treatment. The feces were examined twenty days after treatment and no ova were found. A second examination thirty-six days later was also negative. The symptoms were relieved by treatment and up to the present time have not recurred.

In many instances the dwarf tapeworm seems to be entirely harmless, judging from the absence of symptoms. In other cases symptoms are present which are usually mild, but in certain instances are rather severe.

The three reported cases showed symptoms of unusual severity and give sufficient evidence that in a few cases at least the dwarf tapeworm may give rise to obscure gastro-intestinal or nervous disorders.

These cases were from the service of Dr. Eli Long in the pediatric clinic of the New York University and Bellevue Hospital Medical College. I desire to acknowledge my indebtedness for the privilege of making this report. I also wish to thank Miss Eleanor Ketcham for valuable assistance in carrying out the treatment and in following the cases.

54 West One Hundred and Fourth Street.

RUPTURE OF THE URINARY BLADDER OPERATED ON SEVENTY-SEVEN HOURS AFTER INJURY

JAMES R. JUDD, M.D.
HONOLULU, H. I.

With the literature at my disposal, I was under the impression that this was a very unusual case in respect to the interval of time between the injury and the laparotomy. In von Bergmann's surgery, vol. v, a case of Roses is recorded in which the patient was operated on 48 hours after the injury, and this is considered as probably the longest interval of time on record followed by a successful outcome. Quick,[1] however, reported an extraordinary case of 254 hours' interval. In this case the patient was able to void some urine, and the rupture "admitted the thumb rather tightly." The same article mentions Blumer's patient, operated on on the sixth day, and Alexander's case with 90 hours' interval. While the above reported cases render mine not unique, there is enough of interest to make it worth reporting.

History.—The patient, a native Hawaiian, aged 55, after a debauch fell off a veranda, a height of about six feet, and struck his abdomen. He immediately felt a sensation of something giving away inside of him and was unable to void any urine. He suffered considerable pain in the bladder region, and noticed that the abdomen began to swell. From Thursday, August 12, at 7 a. m., until Sunday, August 15, at 1 p. m., when he was brought to the hospital, he had passed no urine, the distention of the abdomen had increased, and respiration was becoming embarrassed.

Examination.—This showed a thin, sickly-looking adult, who lay on his back with his legs flexed. The pulse was 120 and feeble; respiration was 40 and labored, and temperature was 98. The abdomen was very much distended and the skin tense. There were no visible signs of injury. There was tenderness over the entire abdomen and the percussion note was dull. A catheter drew off a few drops of clear urine.

Operation.—Operation was performed at once. On opening the peritoneum, a jet of urine shot up to a height of about four feet. The amount of urine free in the abdominal cavity was estimated at six quarts. The posterior wall of the bladder showed a transverse rent with ragged edges, easily admitting four fingers. The peritoneum was everywhere injected but there was no evidence of peritonitis. The edges of the bladder rent were freshened and the wound sutured by a plain catgut through-and-through continuous suture including all the coats, followed by a Dupuytren silk suture for the peritoneal coat. The abdominal cavity was flushed out with salt solution and the parietal peritoneum sutured without drainage. The bladder was drained as in a suprapubic cystostomy. The abdominal wall was then closed, allowing exit for the tube.

Result.—The patient was placed in the Fowler position and did well for four days, when he began to show symptoms of delirium tremens and, when he was not being watched, he disconnected the tube and made his exit from the hospital. He was found after having walked about 200 yards and was put back to bed. The next day, in his delirium, he pulled the tube out of the wound, causing severe hemorrhage. A catheter was then placed in the urethra and the urine drained partly through the catheter and partly through the suprapubic wound. From that time on recovery was uneventful. The catheter was removed in five days and the patient began to pass urine successfully. There was at no time any evidence of cystitis. The man was out of bed in two weeks with a granulating wound which in two weeks more had entirely closed.

1. Ann. of Surg., January, 1907.

POLYCYTHEMIA DISAPPEARING AFTER REMOVAL OF THE APPENDIX

BAYARD HOLMES, M.D.
CHICAGO

Polycythemia, so often overlooked in routine examinations of the blood, must be considered a master symptom. It is not an anhydremia but a plethora, probably of toxic origin. It is directly due to an increased activity of the hematopoietic function of the bone-marrow as the histology shows at autopsy.[1] The fact that the polycythemia is so obvious (6,000,000 or more), is due to the effort of all the organs to dispose of the increased volume without raising the blood-pressure. Boycott and Douglas[2] demonstrated in 9 cases of polycythemia that the volume of blood was two or three times the normal, thus resembling chlorosis, ankylostomiasis and pernicious anemia. Thus the plethora of the ancients is restored to us in a new light.

The close relation between methemoglobinemia and polycythemia is so intimate as to make us associate them in searching for their etiology. In half of all the cases of sulphmethemoglobinemia and methemoglobinemia the patients have had a true polycythemia.[3]

The uncertain origin of polycythemia leads me to report the following case:

History.—E. J., aged 21, came to me with the diagnosis of appendicitis. He was a tall brunette and weighed 128 pounds. His father died at 57 of some abdominal disease, possibly cholangeitis. His two brothers are well and resemble him and their mother strongly, except in size. In that particular they resemble their father. While in school he became weak, dizzy and nervous, so that he could not rely on himself to do his work. He persisted for a few months, however, and then in 1908 went home. He was troubled with both diarrhea and constipation and was treated for mucous colitis. He made some improvement under the prescribed diet and the mucus disappeared but the attacks of general and abdominal distress continued. One of these spells was attended by so much tender-

1. Weber and Watson: Internat. Clinic, 1905, iv, 47.
2. Boycott and Douglas: Jour. Path. and Bacteriol., 1909, xiii, 117.
3. For bibliography see Quart. Jour. Med., 1909, ii, 128.

ness over the region of the apendix that the patient's physician recommended the removal of the appendix.

Examination.—The history was so much like a severe toxemia that I doubted the diagnosis for a time. The cerebral and neurasthenic symptoms, with abdominal discomfort, made me think of a long line of the diseases of uncertain origin. The examination of the blood which was made in my office, at Wesley Hospital and in the laboratory of the Northwestern University showed a high grade of polycythemia, 7,750,000 on the average. Many blood examinations were made by various observers and all agreed in a high red count without abnormality in white elements. The blood-pressure varied between 130 and 160 at various times. No spectroscopic examination of the blood was made as I did not at that time recognize the possibility of a methemoglobinemia. As I remember the patient now he did not show any cyanosis, or have any clubbing of the fingers. His spleen was not noticeably enlarged.

Operation.—In spite of my misgivings and with full understanding of the situation by the patient, his friends and his physician, I removed the appendix in July, 1909. There was evidence of a chronic appendicitis but unfortunately no examination of the colon or intestines was made through the small opening. There was no lymphadenitis such as we find in typhoid and no tuberculous peritonitis.

Postoperative History.—During the week in the hospital after the operation there was no change in the blood-count. On the patient's returning home he was advised to take the outdoor and forced feeding treatment, and a buttermilk and sauerkraut diet was especially urged. In September the blood was found entirely normal by Dr. Schooler of Pontiac. In February the patient called and seemed much improved in general appearance. He weighed 147 pounds. His blood was entirely normal, 4,800,000 reds, 7,500 leucocytes in normal proportions.

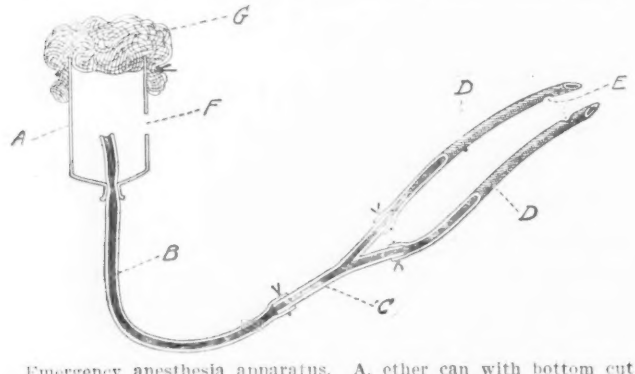
The possible relation between colon bacillus infection and polycythemia makes this observation, which seems to me unique, worthy of record.

92 State Street.

AN EMERGENCY APPARATUS FOR ADMINISTERING AN ANESTHETIC

GEORGE A. CATHEY, M.D.
PORTLAND, ORE.

One morning a man was brought into the surgery of the Good Samaritan Hospital with the right side of his face badly lacerated, requiring an operation. The anesthetic was started, and while the patient was being



Emergency anesthesia apparatus. A, ether can with bottom cut out; G, twelve layers of gauze tied over end of can; F, hole in side of can, size of a dime, to regulate amount of air; B, rubber tubing; C, connecting Y from stethoscope; D, catheters with ends cut off on the bevel to be inserted in the nostrils; E, holes in side of catheters to insure vent.

scrubbed the surgeons realized the difficulty of doing the operation with the ordinary inhaler constantly in the way. Within five minutes I devised and had ready for operation the apparatus shown in the illustration.

The tubes were introduced into the nostrils, the anesthetic was continued, and the operation finished without interference from administration of the anesthetic.

New and Nonofficial Remedies

SINCE THE PUBLICATION OF THE BOOK "NEW AND NONOFFICIAL REMEDIES, 1910," THE FOLLOWING ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK ARE ASKED FOR.

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT SO FAR AS KNOWN IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

(*Continued from page 1142*)

THIOL.—Thiolum.—Thiol is a water soluble mixture of sulphurated and sulphonated petroleum oils.

Thiol is prepared by heating certain paraffin oils with 10 per cent. of sulphur, by which a partial addition of the sulphur takes place. The thiol oil thus formed is then treated with sulphuric acid for sulphonization. The excess of sulphuric acid is washed out by water and the sulphonated product neutralized by ammonia and the solution freed by dialysis from all inorganic salts. The dialyzed product evaporated to dryness contains about 12 per cent. of sulphur. For therapeutic purposes the evaporation is not carried to absolute dryness but the product is marketed either in the form of a syrupy liquid (Thiol Liquid, see below) or as a powder (Thiol Dry, see below).

Thiolum is a brown powder with a pleasant odor resembling Russia leather, having a somewhat bitter and slightly astringent taste. It swells up in water and finally dissolves. It is also soluble in alcohol and slightly soluble in ether.

Thiol should not markedly redden litmus paper.

Actions and Uses.—Thiol is said to have a drying, astringent, antiphlogistic, and disinfecting action. Taken internally it is said to favor digestion and defecation. It is said to be useful in skin diseases, especially in dermatitis, acne, eczema, erysipelas, erythema, furunculosis, herpes, pruritus, pityriasis, etc. It is also claimed to be useful in burns, in rheumatism and in certain diseases of women.

Dosage.—It may be applied locally in the form of liquid thiol in full strength or in solution with glycerin or water or in the form of ointment or a 2 per cent. solution of liquid thiol may be used as a spray. Internally it may be given in the form of dry thiol in the dose of 0.1 to 0.2 Gm. (1½ to 3 grains) three times a day. Dry thiol may be employed as a dusting powder, either alone or with 80 per cent. of starch or in the form of ointment or of paste.

Manufactured by J. D. Riedel Aktiengesellschaft, Berlin, Germany (Riedel & Co., New York). U. S. trademark 16,553.

Thiol Dry.—Thiolum Siccum.—Thiol Dry is a brown powder with properties corresponding to the description of thiol, containing from 8 to 9 per cent. of sulphur.

Actions, Usage and Dosage.—See Thiol.

Thiol Liquid.—Thiolum Liquidum.—Thiol liquid is a preparation of thiol containing about 1.8 to 2 per cent. of sulphur.

It is a dark brown neutral liquid of a not unpleasant smell resembling that of Russian leather. It is easily soluble in water and glycerin but only slightly soluble in ether.

Actions, Uses and Dosage.—See Thiol.

ARTICLES ACCEPTED FOR N. N. R. APPENDIX

The Maltine Company, Brooklyn, N. Y

Maltine with Cascara Sagrada.—Each 100 Cc. is said to represent cascara sagrada (Rhamnus Purshiana) 12.5 Gm. (60 grains in a fluidounce) in a mixture containing maltine 96.115 per cent. and alcohol 3.885 per cent.

Maltine with Cod Liver Oil.—A liquid said to represent maltine 56.115 per cent.; glycerin, 10 per cent.; cod liver oil, 30 per cent.; alcohol, 3.885 per cent.

Maltine with Creosote.—Each 100 Cc. is said to represent beechwood creosote, 0.83 Cc. (4 minims in a fluidounce) in a mixture containing maltine, 96.115 per cent., and alcohol, 3.885 per cent.

Maltine Ferrated.—Each 100 Cc. is said to represent iron pyrophosphate 1.65 Gm. (8 grains in a fluidounce) in a menstruum containing maltine, 96.115 per cent., and alcohol, 3.885 per cent.

Maltine with Hypophosphites.—Each 100 Cc. is said to contain calcium hypophosphite, 0.64 Gm. (3 grains in a fluidounce), sodium hypophosphite, 0.64 Gm. (3 grains in a fluidounce), and iron hypophosphite, 0.42 Gm. (2 grains in a fluidounce) dissolved in a solution of ammonium citrate and to contain maltine, 96.115 per cent., and alcohol, 3.885 per cent.

Maltine with Olive Oil and Hypophosphites.—A preparation said to consist of maltine, 65 per cent.; pure olive oil, 25 per cent.; glycerin, 10 per cent.; to which per 100 Cc. there is added calcium

1. Maltine plain is already in N. N. R. Appendix, which see.

hypophosphite, 0.6 Gm. (3 grains per fluidounce); sodium hypophosphite, 0.6 Gm. (3 grains per fluidounce).

Maltine with Phosphate of Iron, Quinia and Strychnia.—Each 100 Cc. is said to represent iron pyrophosphate, 0.83 Gm. (4 grains in a fluidounce); quinine sulphate, 0.21 Gm. (1 grain in a fluidounce); strychnine (alkaloid), 0.0066 Gm. (2/75 grain in a fluidounce) dissolved in a solution of ammonium citrate and to contain maltine, 96.115 per cent., and alcohol, 3.885 per cent.

Maltine with Wine of Pepsin.—A liquid said to consist of maltine, 27.5 per cent.; wine of pepsin, 71.5 per cent.; and fluid extract of gentian, 1 per cent., the percentage of alcohol in the mixture being 18 per cent.

Malto-Yerbine.—A liquid said to contain in each 100 Cc. an extract of 6.6 Gm. (30 grains in a fluidounce) of eriodictyon (Yerba Santa), also flavoring composed of the essential oils of anise, cassia, coriander and caraway in a mixture containing maltine, 96.115 per cent. and alcohol, 3.885 per cent.

The extract of Yerba Santa employed in Malto-Yerbine is prepared as follows:

The leaves of Yerba Santa in coarse powder are boiled under pressure for six hours and inert matter separated by a filter press. The filtrate is concentrated with a certain quantity of maltine at a high temperature until the product has reached a density of 1.35 This extract is mixed in proper proportions with maltine of extra diastasic strength to make up for the diastasic strength lost through heat during the concentration of the drug with maltine.

(*To be continued*)

Therapeutics

TUBERCULOSIS

Any suggestion that even apparently tends to the successful treatment of this disease is worthy of general consideration, and the careful observations of Dr. John F. Russell, of New York, should not be allowed to pass by without comment. In the *Medical Record* of Nov. 27, 1909, and Dec. 18, 1909, he discusses his observations on the value of lime to the nutrition and its apparent ability to aid in Nature's healing of pulmonary tuberculous lesions.

He calls to mind that lime forms three-fourths of the total mineral salts of the body, and that it is found in all tissues and fluids, and that the most important lime salt is the insoluble phosphate. The chief lime-carrying food is milk, and, next to it, eggs, and it is certainly conceded that milk and eggs are most important in the diet of a tuberculous patient. It seems to be a chemical fact that the phosphate of lime is most ready for absorption and nutrition when it is in chemical union with a proteid. Whether a lack of lime is a predisposing cause of the successful growth of tubercle bacilli, as apparently believed by Russell, he seems to have shown that the more lime that is presented to these patients in a manner in which it can be absorbed and assimilated the more likely are they to improve and the more rapid is their, at least temporary, recovery. He has noticed, that when natural lime is presented in such a manner that patients will absorb it, that an effusion and symptoms of acute pleurisy occur over the region of lung that is diseased. The patients have increased temperature and pain, and all the signs of a plastic pleurisy. These symptoms last for a week or more, and, he says, as a rule the more marked the lung lesion the more marked the physical signs of pleurisy. After these acute symptoms subside and the slight effusion begins to organize, he finds that local improvement in the diseased lung can soon be determined. The time at which these symptoms of pleurisy develop is from the sixth to the sixteenth week after the treatment is begun.

Russell finds that the best method of administering the phosphate of lime, so that the patient may assimilate it, is by causing its combination with casein by acidifying milk with dilute hydrochloric acid. He says this cannot be well done by administering the acid after the patient has drunk milk, but a combination of egg and milk previously prepared makes, in his estimation, a successful lime food. "Two eggs are beaten, strained and mixed with enough milk to make a quart. Then 4 fluidrams (16 c.c.) of dilute hydrochloric acid are added to the mixture and stirred until thoroughly mixed. The mixture is then bottled and placed in an ice chest, and the patient drinks a pint in the morning and a pint in the evening. The size of the curds in the milk varies with the temperature of the milk at the time when the acid is added; the warmer the milk the thicker the curds, but they are always soft and easy to digest. The taste of this combination is not unpleasant."

Russell explains the action of the hydrochloric acid as, "first, to activate rennet zymogen; second, to activate pepsin zymogen; third, to stimulate the secretion of the pancreatic juice" by the promotion of the production of secretin from the intestinal glands, which hydrochloric acid has the power to do.

Russell insists that a patient is not successfully treated unless he gains weight up to the standard that was his previous normal. Russell does not strive to increase the patient's weight after he has attained his normal.

As noticed in other feverish processes, when there is fever in tuberculosis, probably the hydrochloric acid of the stomach is diminished in amount. Also, it is a fact that an increased amount of milk or increased amount of fats, as so generally ordered and prescribed in tuberculosis, will inhibit the normal output of hydrochloric acid. Both of these facts make it physiologically correct to administer dilute hydrochloric acid.

Russell does not presume that the increased amount of lime which he aims to have his patients assimilate will act as a poison to the tubercle bacillus, but he claims that when there is lime starvation or insufficient lime in the tissues that the cells do not properly function, and if lime in normal amount reaches the blood it will restore the normal protective function of the cells in producing a fibrosis at the point of irritation caused by the growth of the bacillus. His choice of the casein method of increasing the lime is because it has a peculiar affinity for lime salts, particularly the phosphate, and combines with them chemically. The investigations to which he refers also show that in the absence of rennet the chemical combination of lime and casein will not take place, and the rennet zymogen of the stomach will not act if there is not free acid present. Consequently, Russell has devised his method of increasing the absorption of lime on a scientific basis.

In further elaborating his theory that lime starvation may predispose to the growth of the tuberculous process, he instances the fact that pregnancy and lactation, with its drain on the mother's lime salts, and prolonged fever with the consequent diminished nutrition from the diminished amount or absence of normal hydrochloric acid in the stomach, all predispose to tuberculosis.

A tendency to repeated attacks of hemoptysis and other hemorrhages is now generally conceded to be due to lack of the proper amount of lime in the blood. Also, tuberculous processes that are healing require an extra amount of lime. All of these conditions, then, seem to show that an extra amount of lime is needed in tuberculosis.

Another interesting fact pointed out by Russell in this discussion of lime starvation is that cows are much more likely to be affected with tuberculosis than are bulls or calves, and, of course, it is the cow that is losing a large amount of lime with her milk; i. e., it would take more lime in a properly assimilable form to keep the lime content of her tissues normal than in the calf or the bull. Therefore, this dietetic suggestion of Russell's for tuberculous patients is worthy of practical application.

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[*For other information see second page following reading matter*]

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THE AMERICAN MEDICAL ASSOCIATION—ITS POLICIES AND ITS WORK

V. THE COUNCIL ON PHARMACY AND CHEMISTRY

In this series of editorials dealing with the work of the American Medical Association it is, in the nature of the case, impossible to prevent repetition. The work of the Association is so far-reaching and ramifies in so many directions that no one phase can be considered except in its relation to others. For example, it is impossible to discuss the work of the Council on Pharmacy and Chemistry without touching on the relation of the medical press to the proprietary question; neither is it feasible to deal with the work of the Association laboratory without dwelling to some extent on the "patent medicine" evil. We make no apology, therefore, for saying some things more than once. Reiteration of facts can do no harm; probably it is what is needed.

The organization of the Council on Pharmacy and Chemistry and the publication in THE JOURNAL of the work accomplished by the Council have made more enemies for the Association and its journal than all other activities of the Association combined. When it is realized that millions of capital were and are invested in the manufacture of fraudulent proprietaries and that a large portion of the medical press was and is deriving its existence directly or indirectly from the proprietary interests, it is not surprising that the most strenuous opposition arose when the Council undertook to tell the medical profession the truth about therapeutic frauds.

The cheap newspapers have consistently defended the "patent medicine" humbugs; for the same reasons the poorer class of medical journals have fought the work of the Council; not openly, except at first, for that would be impolitic, but by attacking the Association and by attempting to discredit its officers. It is a demonstrable fact that, SHOULD THOSE PREPARATIONS WHICH THE COUNCIL HAS SHOWN TO BE FRAUDS CEASE TO BE ADVERTISED, ONE-THIRD OF THE MEDICAL JOURNALS IN THE UNITED STATES WOULD GO OUT OF EXISTENCE.

It is unnecessary again to give in detail the reasons which brought the Council into being. The disgraceful condition into which drug therapy in the United States had sunk; the shameless impositions practiced on the public and the medical profession by proprietary frauds; the brazen way in which men without knowledge of medicine or pharmacy assumed to teach physicians how to treat disease; the subordination of the medical press to the nostrum interests—these were but some of the grosser abuses which had resulted from the unrestricted manufacture and sale of proprietary remedies. These evils the Association, through its Council on Pharmacy and Chemistry, hoped to correct; and these evils it has been, and still is, correcting with a success that is plain to all those who have taken even a superficial interest in the questions involved, and is even more clearly evidenced by the nature of the opposition it has aroused. In its work the Council has received the aid and approval of men—in both the United States and Europe—who rank among the highest in their professions, a cooperation that has meant much to the medical profession of this country.

Neither is it necessary to enlarge on the aims and objects of the Council; with these the medical profession, by this time, is thoroughly conversant. Moreover, this phase of the subject was exhaustively discussed by Professor Sollmann in his series of articles on "The Broader Aims of the Council." It is more important that physicians generally, and members of the organization especially, should be brought to a realization of what the Council on Pharmacy and Chemistry has actually done in the five years of its existence.

Proprietary products submitted to the Council are not hastily or superficially examined, but to each the most painstaking and careful consideration is given. Notwithstanding this, the Council has critically examined and thoroughly considered the claims made for more than one thousand products, of which over six hundred[1] have been accepted for inclusion in "New and Nonofficial Remedies," while nearly four hundred have been rejected. There are, of course, hundreds of nostrums which on their face are so plainly fraudulent that no intelligent physician could be misled by them and to which, since they stand self-condemned, the Council has not attempted to give more than a superficial examination. It is impossible for one not conversant

1. It should be said that at the time the Council was organized probably not one-half of these six hundred preparations conformed with the Council's requirements. An honest desire on the part of the manufacturers to better the status of therapeutics caused them to modify their claims and made the acceptance of these products possible.

with the details to realize the amount of work these figures represent. Nor does the examination of proprietary products which the manufacturers themselves have submitted comprise nearly all the labors of the Council. A large number of widely advertised preparations for which specious claims are made have been taken up on the Council's own initiative and their viciousness made plain to the medical profession.

In addition to the vast amount of work that has been done on proprietary products, a number of drugs that are neither proprietary nor official have been considered by the Council. Such of these products as seem to have some therapeutic virtue have been described in "New and Nonofficial Remedies," while descriptive and critical reports have been published on those that are without proved value and whose deletion from the already overburdened materia medica would be desirable.

One phase of the work that at first was merely incidental to the general duties of the Council finally became of sufficient importance to warrant a special report, namely, that of curbing to some extent the misquoting of medical literature by proprietary manufacturers for their own ends. So extensive had this abuse become that even the more conservative manufacturers were guilty of grossly misrepresenting the views of medical writers. The Council took up one glaring instance and published an extensive report on the subject. The value of the preparation itself was not discussed, the only question being that of the garbling and misquoting of contemporary medical literature dealing with the preparation. That this report, together with the careful scrutiny to which the Council subjects the advertising matter of all preparations which it considers, has done much to cause manufacturers to be more conservative and truthful in praising their products and in quoting literature, is evident to any one who cares to compare the advertising "literature" of to-day with that issued five years ago.

Physicians, with the laity, have long held exaggerated views regarding the food-value of meat-extracts, though it has been proved, time and again, that, aside from possessing mildly stimulating properties, they are practically valueless. Moreover, while meat-*juices* have a distinct food value, many so-called meat-juices on the market are practically meat-extracts. The Council published the results of a most exhaustive chemical examination of some of the most widely advertised preparations for which great nutritive value was claimed and its practical absence was proved.

Within the past year the Council has devoted some time and work to the consideration of serums and vaccines, and through its initiative a symposium on these subjects was presented to the Section on Pharmacology, in which the best authorities in the United States were represented. From the conclusions reached by these authorities the Council prepared descriptions of the various products found on the American market.

In brief, then, it may be said that the Council has examined practically every proprietary article of any value now on the market, and that those which have not been accepted are unworthy of the physician's consideration.

It has shown up the fraud, misrepresentation and deceit connected with the exploitation of many of those proprietary articles which were a disgrace to pharmacy, a detriment to scientific medicine and a danger to the public.

It has—by insisting that products to be acceptable shall be advertised truthfully—done more to raise the commercial ethics of pharmaceutical manufacturers than any other agency—not even excepting the national Food and Drugs Act.

It has made plain, in a manner never before attempted, the strictly limited value of many largely advertised "meat-juices."

It has furnished the profession with information regarding the value of numerous unofficial, non-proprietary drugs and has thereby done much to dispose of the useless lumber of the overloaded materia medica.

It has thrown light on that valuable and ever widening branch of therapeutics, serum therapy, and, so far as our present knowledge will permit, has separated the wheat from the chaff.

It has, in fact, at all times tried to make plain to the medical profession the vast possibilities of rational, sane and scientific drug therapy as contrasted with the haphazard and vicious results of nostrum-prescribing. It has consistently, persistently and insistently told the truth about proprietaries—good, bad and indifferent—without fear or favor.

Therapeutics in the United States has progressed more in the last five years than it did in the previous fifty—and the Council is responsible for it. The American physician has a clearer conception of the possibilities and limitations of drugs to-day than he ever had before—and the Council is responsible for it. Purer and more reliable pharmaceuticals can be had now than ever before was possible—and the Council has been largely

responsible for it. The reading pages of medical journals now published are freer from nostrum testimonials disguised as original articles than has been the case for a quarter of a century—and again the Council is responsible for it.

This work has not been accomplished without arousing the most active antagonism of those nostrum manufacturers whose products were exposed and of those medical journals whose existence depends on the advertising receipts from such manufacturers. When millions are invested in perpetuating a profitable fraud there can always be found those who will seek to justify the dishonesty—and the nostrum business is no exception. By open opposition, by innuendo and crimination, every effort has been made by the interests affected to disorganize the forces of therapeutic decency and to destroy the splendid work the Council is doing. Happily, however—and to the credit of the organized profession be it said—these efforts and this destructive criticism have failed, for the profession has decided that the work of the Council *is* worth while, that the advance made shall be maintained and that therapeutics shall not be allowed to lapse into its previous deplorable condition of utter subjection to the commercial spirit.

WILLIAM HENRY WELCH

The great dinner[1] in Baltimore April second, in honor of Dr. Welch, President-Elect of the American Medical Association, is unique among events of this kind because of the participation in it of so many representative leaders not only in medicine but also in the fields of general learning, of industry and commerce, and of politics. This outstanding feature of this remarkable event testifies better than almost anything else could to the general appreciation of the truly commanding position which Dr. Welch occupies and for many years has occupied in the medical and scientific activities of the country. How he reached such pre-eminence cannot be told fully at this time; a few imperfect and cursory touches only may be given of his remarkably useful career, the keynote of which is the unselfish and untiring devotion of a superb and finely trained intellect to the service of medicine. After his graduation in medicine (College of Physicians and Surgeons in New York, 1875), Dr. Welch turned his attention to pathology and for the next three years or so we find him at work in various German laboratories. Under the direction of that brilliant experimental pathologist Cohnheim, whose death at a comparatively early age seems such a great loss to science, he completed an important investigation on experimental pulmonary edema. He was present in Breslau when Koch, then unknown, came from Posen to show Cohnheim his work on anthrax and heard the latter's prophetic remark: "There is a great man of whom we shall hear much in the future!" A few years later, he took part in Koch's first course in bacteriology in Berlin. This must suffice to indicate the nature and extent of his earlier training.

He was professor of pathology in Bellevue Medical College in New York, when he was called to the newly founded Johns Hopkins University as professor of pathology and pathologist to the Johns Hopkins Hospital, being the first member of the faculty that was entrusted with the difficult task of establishing a complete medical school on the highest plane yet attempted in this country. The success of that attempt and its influence on our ideas of medical education in general are now matters of history. That the Johns Hopkins Medical School has been one of the leading medical schools of the world since its first inception, owing largely to the wise counsels, lofty ideals, and ability of Dr. Welch, its first dean, is not questioned by any one at all familiar with its development.

We may now consider briefly Dr. Welch in the threefold capacity of teacher, investigator, and adviser in affairs of medical and scientific nature. Dr. Welch is a great teacher. Always fully abreast with many lines of work by virtue of a faculty of easy acquisition, following closely the developments with keen and critical appreciation, endowed with an apparently phenomenal memory, he possesses an enviable power to impart knowledge with a facility that excludes all sense of its costing any effort whatever. Lucidity and ease of expression, close reasoning, the thoughts moving in orderly sequence, a judicial calmness and an all-pervading sanity—these are striking characteristics of his writing and speaking.

Primarily a pathological anatomist firmly rooted in cellular pathology, he has produced original work of the highest quality in pathologic anatomy, in experimental pathology, and in bacteriology, the details of which need not be given here. Many of his articles and contributions to text-books and systems are classical in their comprehensiveness and clearness; for example, the introduction to general pathology in Flint's work on practice, the article on thrombosis and embolism in Allbutt's system, the Huxley lecture on immunity, the papers on venous thrombosis in cardiac disease and on infections caused by the *B. aerogenes capsulatus* (discovered by Welch and Nuttall in 1892 and sometimes known as *B. welchii*).

Associated with profound scientific and scholarly attainments is the grace and charm of a personality that inspires affection and intellectual effort. Consequently a large amount of fine investigative work has been carried out by assistants and students working under the direction of the master. The pathologic laboratory of the Johns Hopkins Hospital very soon became the accepted center—the pathologic mecca—in the United States and Canada for investigation and training in

1. Reported in the News Department in this issue.

pathology. Now former workers and assistants in that laboratory occupy a large number—too large to enumerate—of our most important pathologic posts, while many others have reached eminence in other branches of medical science as well as in practical medicine and surgery. Dr. Welch has had a larger part than any other person in training those who are now leading and about to take the lead in our medical teaching and investigation.

Many-sided, of clear vision, and in close touch with every aspect of medical science, Dr. Welch is rendering most important service in the capacity of adviser not only to individuals but also to institutions and to local and national governmental bodies. It is said that his advice led to the creation of the Yellow-Fever Commission of the U. S. Army, which, with the lamented Reed at its head, accomplished the epochal discovery of the rôle of the mosquito in the spread of yellow fever. The needed presence of a medical man on the Isthmian Canal Commission is due largely to the same influence. Occasionally instances become known illustrating that suggestions from Dr. Welch have borne rich fruit through the work of others, notably the demonstration of the filterable character of the yellow-fever virus. An enumeration of the more important positions occupied by Dr. Welch at the present time will emphasize better than anything else the value placed on his advice and co-operation: He is president of the board of directors of the Rockefeller Institute for Medical Research, the director of which, Dr. Flexner, his former assistant, is doing such splendid work; member of the board of the Carnegie Institution and chairman of the executive committee; president (since 1898) of the Maryland Board of Health; member of the Charter Revision Committee of Baltimore, and, last but not least, President-Elect of the American Medical Association. And here we take leave for the present of our representative in a uniquely wise significance, while at the zenith of a career of unparalleled usefulness, universally respected, honored as few are honored, beloved by all who know him.

THE AUTOMOBILE AND THE PHYSICIAN

The automobile is a part of the higher standard of living toward which all are striving, and in many occupations and conditions is as indispensable as the other necessities of to-day which only yesterday ceased to be luxuries. It is no longer a plaything of the rich; it is an efficient aid in practical progress—in the every-day work of the world—just as is any other piece of labor-saving machinery. Like other epoch-making inventions, it is a social and industrial force, but its novelty, its convenience, and the pleasure and relaxation it affords have absorbed general attention largely to the exclusion of its wider significance and importance, which, after all, is a not infrequent occurrence in the case of innovations of far-reaching importance. A future by no means remote will no doubt show that its influence in many directions has been marked. It would be interesting to speculate a little along this line.

Civilization, it has often been said, depends much on transportation. There are, of course, limitations to the services which may be rendered by steam and electric railways and by water transportation; so that even with their fullest development certain areas will be left without those means of rapid communication. The automobile is supplying this hiatus in transportation facilities. It brings the remote districts into quick communication with the centers of business, in touch with the markets, with the cities, the centers of education and culture. Already it has had a wide-spread influence on the roads of the country, calling attention forcibly to the value of good roads for everybody, whether auto-users or not. It will make possible a vast extension of the rural mail service, aiding the dissemination of knowledge. It will make possible the centralization of country schools, which has been found desirable, and which is already attempted with the slower means of transportation. In rural communities it will make possible residence in towns or villages, with the many advantages which closer social communion offers, thus overcoming the chief objections to rural life, without interfering with the successful cultivation of the soil under the scientific methods now being so rapidly developed. On the other hand it will enable the dweller on the farm, by means of this time-eliminating device, to keep in close touch with his neighbors and friends, or with the neighboring city, town and village, with the social and cultural advantages they afford. With this concentration of the rural population in towns and cities, or even without it, it is evident that this means of locomotion will give every one freer access than ever before to all the privileges of hospitals. More hospitals will no doubt be built in the smaller places; and the manifest advantages to the sick and the well need be no more than suggested here.

To the physician perhaps more than to any other member of the community the automobile is indispensable. Business can wait, if need be, but the work of the physician requires prompt attention always. His duties call him hither and yon, frequently at time-consuming distances. The automobile offers him a mode of conveyance which is always ready and which enables him to cover much ground at the least expense of time. Naturally it wins his approval, as is evident from the articles in this issue. These contributions from many readers express various opinions about the automobile, the kind of car to choose and the way to care for it, but with few exceptions they are favorable to its use by the physician.

It is interesting to compare the contributions of this year with those of previous issues. Some problems are passing away and new ones have taken their place. The high-wheel car seems to be less used. The pneumatic-tire problem is still with us, no substitute which is entirely satisfactory having been found. The pneumatic

tire, however, is being perfected, and when properly used is giving somewhat less trouble than before.

Automobiles as a class are now made more reliable than those of two or three years ago. They are more available for the man who must be his own chauffeur and mechanician. The time seems not far away when it may almost cease to be necessary for a man to have some little mechanical ability in order to be a successful automobilist. Apparently there are a number of cars on the market which will give eminent satisfaction to the physician. It is clear, however, that the automobile cannot be operated and maintained for little or nothing. A man who uses it considerably for pleasure is apt to feel the need of an increase in his income. On the other hand, the man who uses his automobile largely for his practice will surely add to his income. It is the almost universal testimony that it enables a man to cover more ground and to see more patients and still to have more time for study and pleasure.

A part of the space given to the subject in this issue is taken up with an analysis of the replies to questions which we published asking for various facts in the experience of our automobile readers. We take this occasion to thank our contributors for what they have written, and to express the desire that the automobile may continue to be a source of profit and recreation to them.

THE NAMES OF THE AUTOMOBILES

As has been the custom, the names of the machines referred to are not given in the automobile articles, but are designated by reference numbers. A folder containing these numbers and the corresponding names and also containing a list of names and addresses of automobile manufacturers will be sent to any one who requests it and encloses a self-addressed, stamped envelope. Automobile contributors and those who sent in answers to the questions we printed need not ask for the key as a copy will be sent to each of them.

THE TEMPTATION TO "SCORCH"

There is probably no profession or occupation that has received more benefit from the advent of the automobile than has the medical profession. The time saved in going about enables the practitioner to widen the area of his activities, to see more patients, and, above all, to have more leisure for study, for reviewing his case histories and for recreation. The recognition of these advantages constitutes a constant temptation to reap more benefit by hurrying while on the road, and the habit of hurrying tends to foster that enjoyment of speed for its own sake which, when unrestrictedly indulged, has been aptly termed the "speed mania." All but the most timid have felt the fascination of speed, and frequent indulgence in this pleasure soon leads to a dissatisfaction with milder paces that it is difficult to disregard. The physician's machine, with its red cross, is almost everywhere somewhat privileged in the matter of speed, and rightly so, as the comfort of some sick person is frequently at stake, and life itself may depend on the promptness with which the physician responds to a call. While physicians as a rule do not abuse this privilege, there are some who take advantage of the leniency of the police and of public opinion to maintain a speed which is a danger to themselves and to others. Of the innumerable automobile accidents that occur no small proportion is due to excessive speed and careless driving. In a matter which so directly concerns the public safety the physician surely should set an example and avoid even the appearance of putting in jeopardy the life and limb of passers-by. The sentiment within the profession should be strong enough to discourage the immoderation of the few who are reckless. Having taken heed of the beam in our own eye, we can turn with better grace to the mote in the eye of the lay scorcher. When an abuse endangers the public, the medical profession, above all others, must be beyond reproach, or be condemned out of its own standards and precepts.

SANITATION IN PANAMA

The annual report of the Department of Sanitation of the Isthmian Canal Commission for the year 1909, just issued, shows that the remarkable record already established by this department has been fully maintained. Colonel Gorgas' letter of transmittal shows that the death-rate for the past six years has been as follows: 1904, 13.26; 1905, 25.86; 1906, 41.73; 1907, 28.74; 1908, 13.01; 1909, 10.64. The marked decrease since 1906 is in spite of the large increase in the number of employes; in 1906 there were 26,547 and in 1909, 47,167. The total number of deaths in 1909 were only a very few more than the total number in 1905, at which time, the entire force only numbered 16,512. Still more remarkable is the death-rate from disease among white employes, which only amounted to 3.88 per thousand for the year. The death-rate from special diseases is also remarkably low. During the year, there were only 13 deaths from typhoid, a ratio of 0.27 per thousand, while the death-rate from typhoid in the state of Pennsylvania for the same period was 5.03 per thousand. Only 8 deaths from dysentery occurred, not one of which was among white employes. The death-rate from pneumonia was about the same as that in New York City, while the total number of deaths from malaria for the year amounted to only 52. If the cities of Panama and Colon and the country in the Canal Zone between them is included, the total death-rate for all inhabitants for the entire year is 18.19, or 31 deaths less per thousand than in 1905, a saving of over 4,000 lives. The most remarkable of all, however, is the fact that not a single case of yellow fever, bubonic plague, or smallpox has occurred on the Isthmus during the past year. The work of the Sanitary Department of the Isthmian Canal Commission continues to be an object lesson of what can be accomplished by careful, patient, scientific work in freeing tropical and pest-ridden regions from diseases and in saving the lives not only of Europeans and Americans but of the natives as well.

Medical News

ALABAMA

Conference of Charities and Corrections.—At the annual meeting of the Alabama Conference of Charities and Corrections, held in Birmingham, March 22, the following physicians were elected to office: Dr. Thomas D. Parke, Birmingham, president; Dr. John B. Stagg, Pratt City, member of committee on membership. Among the interesting topics discussed was the "Assimilation of the Immigrant," on which a paper was read by Dr. Haickel A. Elkourie, which was discussed by President Abercrombie of the University of Alabama.

ARIZONA

Personal.—Dr. Ralph L. Alexander, Tempe, has been appointed local surgeon to the Maricopa and Phoenix and Phoenix and Eastern railways.——Dr. Clarence Guenter has been appointed assistant chief surgeon of the Randolph Lines with office in Tucson.

State Association Meeting.—The nineteenth annual session of the Arizona Medical Association will be held in Phoenix, April 20 and 21, under the presidency of Dr. Robert N. Looney, Prescott. The oration in medicine will be given by Dr. J. Wilson Shiels, San Francisco; the oration in surgery by Dr. Wesley W. Beckett, Los Angeles, and the oration on state medicine by Dr. James A. Egan, secretary of the State Board of Health, Springfield, Ill.

CALIFORNIA

Health Interests to Merge.—Representatives of leading public health associations of the state will meet in Sacramento April 18, to discuss the project of merging the health interests in a general association, to be known as the "Affiliated Health Associations of California."

Rules Against Vaccination.—In the case of the State Board of Health against the city of Watsonville, in which the board of education refused to enforce the new vaccination law, Judge Lucas F. Smith in the superior court of Santa Cruz, is said to have decided that vaccination law is unconstitutional and that it is class legislation in that it provides for vaccination of public school children and not private school children.

Medical Society Sues.—The Medical Society of the State of California has brought suit, based on the violation of the copyright law, in the circuit court asking an injunction against the Kaplan Medical Publishing Company. The defendant company published the official register for the society for the three previous years, and in October and January is said to have included the register in its own digest published quarterly.

Personal.—Dr. Charles R. Blake has been appointed health officer of Point Richmond, vice Dr. Hawley N. Barney.——Major Paul A. Adams, Los Angeles, surgeon of the First Brigade, N. G. Cal., has resigned and has gone to Honolulu as First Lieutenant, Medical Reserve Corps, U. S. A. Dr. Charles W. Decker, Los Angeles, has succeeded Major Adams.——Drs. Elmer R. Pascoe, J. S. Derrick, Charles T. Palmer and Chester L. Magee have been appointed assistant health officers of Los Angeles.——Dr. William E. Carter has been appointed assistant police surgeon of Los Angeles, to succeed Dr. Charles W. Bonynge, who has resigned and will take charge of the State Board of Health laboratory, Berkeley.——Dr. Philip A. Bill, North Beach, San Francisco, was assaulted and robbed near his home, March 7.——Dr. William T. Lum, Alameda, has been appointed a member of the board of education.

ILLINOIS

Chicago

Rush College Alumni.—At the twentieth annual reunion and dinner of the class of 1890 of Rush Medical College, Drs. E. Fletcher Ingals and Arthur D. Bevan delivered addresses. Dr. T. F. Wilcox was elected president; Dr. Henry D. Anderson, second vice-president; Dr. Emanuel Friend, Chicago, secretary, and Dr. Thomas H. Culhane, Rockford, necrologist.

Personal.—Dr. E. Fletcher Ingals has been elected an honorary member of the Vienna Laryngologic Society and corresponding member of the Royal Society of Physicians, Budapest.——Dr. Howard T. Ricketts, assistant professor of pathology in the University of Chicago, has resigned to accept a professorship of pathology in the University of Pennsylvania.——Dr. Hugh A. Cuthbertson and sister and Dr. James T. Campbell and mother sailed from Boston, April 2, for Vienna via the Mediterranean.

Anti-Spitting Crusade.—The first concerted movement by Chicago organizations to enforce the anti-spitting ordinance was started March 31, at a meeting attended by representatives of the police and health departments, men's and women's clubs, social settlement, United Charities and the Chicago Tuberculosis Institute.——The Chicago City Railway Company has announced that it will have new posters placed in all its cars warning against spitting, and that transfers will have similar matter printed on their backs.

KENTUCKY

New Hospital.—The Children's Free Hospital, Louisville, has been completed and was formally dedicated April 1.

Personal.—Dr. Edward Davenport, Hampton, was operated on in Paducah, March 18, for appendicitis.——The office and equipment of Dr. William C. Wilkerson, Clintonville, was destroyed by fire, March 17.

A Graphic Object Lesson.—The Louisville *Courier-Journal*, in its issue of March 24, published a series of illustrations to show that the Louisville City Hospital is crowded and in bad need of repair, as an object lesson to create public sentiment in favor of the bond issue of $1,000,000 for a new hospital, to be voted on in November.

Society Meetings.—The Paducah Medical and Surgical Society met recently and reelected for the third time the following officers: Dr. John G. Brooks, president; Dr. Oliver R. Kidd, vice-president; and Dr. James T. Reddick, secretary-treasurer.——At the annual meeting of Hardin County Medical Society, held in Elizabethtown, March 10, an insurance society was organized, to be known as the Hardin County Insurance Society, and the following officers were elected: Dr. D. C. McClure, president; Dr. John M. English, Elizabethtown, vice-president; and Dr. Charles T. Riggs, Upton, secretary.

MARYLAND

Personal.—Dr. R. C. Wells has been elected health officer of Hamstead.——Dr. J. McPherson Scott has been elected mayor of Hagerstown.

Optometry Bill Passes.—The optometry bill, which was opposed by the Medical and Chirurgical Faculty of Maryland, passed the senate April 1. Thirteen counties were exempted from operation, but Baltimore City was not included.

Baltimore

The Welch Dinner.—The banquet to Dr. William H. Welch is reported in General News and is also commented on editorially.

Entertainment for Children's Hospital.—The proceeds of the performance of "The Belle of New York" by the Paint and Powder Club, March 28, amounted to $2,850. This will go to the Children's Country Hospital School, located in the suburbs of Baltimore, which has accommodation for 25 patients.

Alumni Meeting.—At the annual meeting of the General Alumni Association of the University of Maryland, held in Lancaster, Pa., Dr. Eugene F. Cordell spoke on "The Duty of the Alumnus," Dr. Henry W. Fishel, Harrisburg, Pa., was elected president, and that city was chosen as the meeting place for 1911.

Personal.—Dr. Henry Barton Jacobs has been elected governor and Dr. B. Bernard Browne, historian, of the Society of Colonial Wars.——Dr. William D. Booker, clinical professor of pediatrics in Johns Hopkins Medical School, has asked to be relieved of his duties and has been made emeritus professor.——Drs. Louis V. Hamman and Paul W. Clough sailed for Europe April 2.——Dr. Harvey W. Cushing of Johns Hopkins Medical School, has under consideration a call to Washington University, St. Louis.

MISSOURI

To Enlarge Medical School.—The plans of President Brookings for the enlargement of the Medical Department of Washington University have been given an impetus by the voluntary offer of Adolphus Busch to join other citizens of St. Louis and the state in a movement to provide St. Louis with a medical college similar to Johns Hopkins University, Baltimore.

Alumni Association Meets.—The Barnes University Alumni Association, at its annual meeting, March 25, elected the following officers: President, Dr. Walter U. Kennedy; vice-presidents, Drs. Orril L. Suggett and Genevieve S. Beckham; secretary, Dr. Charles A. Vosburgh, and treasurer, Dr. Elbert J. Lee, Jr., all of St. Louis. The association decided to give a banquet during the meeting of the American Medical Association.

Personal.—Dr. Henry E. Miller, St. Louis, has returned from abroad.——Dr. Newton McVey, Kansas City, has been appointed state bacteriologist.——Dr. Abra C. Pettijohn, Brookfield, has been elected superintendent of State Hospital for the Insane, No. 2, St. Joseph.——Dr. William R. Strickland has been appointed postmaster of Rockport.——Dr. C. A. Gould has been appointed assistant city pathologist of St. Louis.

NORTH CAROLINA

Charter Granted Sanitarium.—A charter has been issued to the Greensboro Sanitarium with capital stock of $100,000.

Hookworm Work.—Dr. John A. Ferrall, Kenansville, has been designated by the North Carolina State Board of Health as special assistant secretary for the study and prevention of hookworm disease, and has removed to Raleigh.——Dr. Charles W. Stiles, United States Public Health and Marine-Hospital Service, has taken up his residence in Raleigh, and will make the city his official headquarters for the work of the Rockefeller Hookworm Commission, in its special investigation in the southern states.

Personal.—Dr. Edward J. Wood, Wilmington, has been elected president of the Medical Society of the State of North Carolina to fill the unexpired term of the late Dr. James A. Burroughs, Asheville.——Dr. John A. Williams, Greensboro, announces his retirement from general practice April 1. He will give his entire attention to surgery and consultation work.——Dr. Lucius B. Morse has moved his sanatorium from Chimney Rock to Hendersonville. The new building will accommodate 30 patients.

NEW YORK

Tuberculosis Preventorium Incorporated.—The Tuberculosis Preventorium, founded by Nathan Straus, which has for its object the prevention of tuberculosis among children, has received a certificate of incorporation and may operate in the states of New York and New Jersey.

Appoints Delegates.—Among the delegates appointed to represent the state at the National Conference of Charities and Corrections which will convene at St. Louis, May 19 to 26, are Drs. Albert W. Ferris, New York City, Charles F. Howard, Buffalo, and Hortense V. Bruce, Hudson.

Study of Hysteria.—The State Lunacy Commission announces that a systematic study of hysteria will be begun in the various state hospitals under the jurisdiction of the commission. This work is the result of the methods and studies introduced by Dr. Adolph Meyer, retiring director of the Pathological Institute.

Open-Air School.—Rochester is making a new effort to safeguard the physical welfare of its school children, and has established an open-air school, the outcome of the day camp established by the Rochester Public Health Association, through the efforts of Mrs. Porter Farley and Dr. Montgomery E. Leary. The first sessions of the school were held at the day camp, and these were continued until the Christmas holidays. Children from the entire city are admitted after examination by Dr. Joseph Roby, physician in charge, and carfare is furnished these children by the association.

Tuberculosis Talkettes.—The Rochester Public Health Association has decided to publish a series of forty leaflets on the various phases of the tuberculosis problem, which will be distributed to every health association in the country. The first "talkette" will be on "Consumption; A Brief History of the Disease," by Dr. Montgomery E. Leary, supervising director of the Public Health Association. Other talkettes to follow at short tintervals are on "Consumption; What it is and Why;" "Inhaling the Germ;" "Systems that Resist the Germ;" "Exploded Theory of Heredity;" "Carelessness;" "Fly, First Assistant to Death;" "Destruction of Tuberculous Expectoration;" "Destruction of Expectoration with Acids;" "Safeguarding the Public;" and "Disinfecting the Sick Room."

New York City

Learning How to Fight Tuberculosis.—A committee of seven appointed by the City Council of Portland, Me., has been visiting this city in order to learn how New York is fighting tuberculosis. The Health Commissioner spent a day showing them the methods employed by the Health Department and the city hospitals.

Precaution for a Safer Fourth of July.—Fire Commissioner Waldo, pursuant to an order from Mayor Gaynor, has issued the following notice, which should prevent the large number of accidents and cases of tetanus that have occurred in past years: "Notice is hereby given to all concerned that the Fire Commissioner hereafter will not issue any permit for the retailing of fireworks, Chinese crackers, rockets, blue lights, Roman candles, colored pots, lance wheels and other works of brilliant colored fire."

Boiled Milk Recommended.—At the direction of Health Commissioner Lederle an exhaustive examination of New York's milk supply has been made which has disclosed the fact that several epidemics of typhoid fever are directly traceable to infected milk. One epidemic was traced to a milk handler who was a typhoid patient forty-six years ago and during all the intervening years has been a distributor of typhoid bacilli. The work has been carried on under the direction of Dr. Herman M. Biggs, and on the presentation of his report to the Board of Health the three members, Commissioner Lederle, Health Officer Doty and Police Commissioner Baker adopted a resolution recommending that milk used for drinking purposes should be either pasteurized or boiled. It was also stated that it seemed probable that a certain percentage of the cases of diphtheria and scarlet fever occurring in New York City result from milk infection.

PENNSYLVANIA

Philadelphia

Personal.—Dr. Alexander C. Abbott has been selected as delegate to the International Congress on Hygiene and Medicine which meets in Buenos Aires next month.——Dr. Charles H. Frazier, clinical professor of surgery at the University of Pennsylvania, was operated on for appendicitis, March 30.——Dr. Almer H. Tomlin, who was operated on for appendicitis at the German Hospital, March 30, is reported to be improving rapidly.——Dr. M. F. Shaughnessy sailed for Europe, March 30.

Insurance Company's Life-Saving Movement.—The Metropolitan Life Insurance Company has made arrangements with the Visiting Nurse Society of this city to carry on the company's scheme of visiting sick policyholders in their homes and giving them all possible aid to tide them over their illness. The movement is not philanthropic, but a purely business arrangement. The policy of the company is to cooperate with the attending physicians, and the nurses' business will be to carry out the doctor's orders, and prevent the disastrous consequence of ignorance and neglect in the sick room. The free nursing service will be extended to the rich, poor and middle classes, irrespective of the amount of insurance they carry and of creed, nationality and color. It includes not only attention during the day, but will provide a nurse at night if the patient is critically ill.

Old-Home Week at the University.—Old-Home Week of the Medical School of the University of Pennsylvania was inaugurated, March 28, with clinics and a luncheon at the University Hospital. In the evening several hundred physicians attended the smoker of the Philadelphia Alumni Society of the Medical Department. Vice Provost Edgar Smith gave an illustrated lecture on the progress of the university since its founding. Following the lecture an appeal was made by Dr. Swithin Chandler to start a fund to erect a monument to Dr. John Morgan, the first dean, over his grave in St. Peter's Church, Philadelphia. The following officers of the Philadelphia Alumni Association were elected: President, Dr. George C. Stout; honorary vice-president, Provost C. C. Harrison; vice-presidents, Drs. J. Gurney Taylor, Lewis H. Adler, Jr., and Howard A. Sutton; secretaries, Drs. B. Franklin Stahl and Herbert S. Wray; treasurer, Dr. Herbert B. Carpenter; executive committee, Drs. Luther C. Peter, Charles A. E. Codman, Clarence P. Franklin, Stephen E. Tracy and Charles J. Hoban. On March 29 the centenary of the foundation of the chair of obstetrics was commemorated with exercises at the College of Physicians. This included an address by Dr. Barton C. Hirst, on Richard Penrose and biographies of Professors Chapman and Jackson, to whom tablets were unveiled Wednesday, were read by Drs. S. Weir Mitchell and James Tyson. On Wednesday the bronze tablets of Chapman and Jackson were unveiled in the Medical Building by Dr. R. Tait McKenzie. Dean Allan J. Smith of the medical department delivered the address of acceptance.——The banquet of the medical alumni was held Wednesday evening at which nearly 300 were present. At the close of the banquet, Provost C. C. Harrison made an address, the chief interest of which was the announcement of faculty changes and new appointments. These were detailed in THE JOURNAL last week, page 1145. The following officers of the Society of the Alumni of the Medical Department were elected: President, Dr. Samuel S. Stryker, '66, Philadelphia; vice-president, Drs. James B. Walker, '72, Philadelphia; George A. Piersol, '77, Philadelphia; Charles W. Burr, '86, Philadelphia; George W. Guthrie, '76, Wilkesbarre; Edward Jackson, '78, Denver; William A. Edwards, '81, Los Angeles;

Thomas M. T. McKennon, '82, Pittsburg; historian, Dr. Roland G. Curtin, '66, Philadelphia, and secretary and treasurer, Dr. Edward A. Shumway, '94, Philadelphia.——The members of the class of 1890 of the medical department, who returned for "Home Week," celebrated the twentieth anniversary of their graduation at a banquet, March 31, at which 18 members of the class were present. The class of 1884 held an informal dinner the same evening over which Dr. George E. de Schweinitz presided.

OHIO

Greene Guest of Honor.—Three hundred members of the Montgomery County Medical Association tendered a banquet to Dr. Duff W. Greene, Dayton, March 4, to celebrate his homecoming after an extended tour of professional research in India.

Personal.—Dr. Daniel W. Reddin, North Baltimore, was operated on for appendicitis, March 21.——Dr. Edgar B. Foltz, Akron, sailed for Europe, April 2.——Dr. Jerry M. Hyde has been appointed health officer of Nelsonville.——Dr. Ezra Burnett, Delphos, was thrown from his buggy in a runaway accident, March 9, and sustained painful injuries.——Dr. Frank W. Rodgers, Findlay, is reported to be seriously ill with paralysis.——Dr. Mark Millikin, Hamilton, has been appointed local surgeon for the Pan Handle System.——Dr. William D. Cunningham has been appointed health officer of Girard.

RHODE ISLAND

Personal.—Dr. Charles F. Peckham, Providence, has been elected surgeon-general of the Rhode Island National Guard, vice Dr. George H. Kenyon, Providence, resigned.——Dr. Frederick T. Rogers, Providence, was operated on for appendicitis at Parade St. Sanitarium, February 17.

Society Election.—Providence Medical Society, at its annual meeting March 7, elected the following officers: President, Dr. Jacob C. Rutherford; vice-president, Dr. Franklin P. Capron; secretary, Dr. Frank M. Adams; treasurer, Dr. Winthrop A. Risk; councilor, Dr. Joseph H. Akers, and delegates to the state medical society, Drs. Herman C. Pitts, George S. Mathews, Frederick G. Phillips, Henry W. Burnett, Charles F. Deacon, George T. Spicer, Carl R. Doten, George H. Crooker, Clarence H. Gardner and Franklin P. Capron.

SOUTH CAROLINA

Health Officers Elected.—At the annual meeting of the Charleston Board of Health, Dr. John L. Dawson was reelected vice-chairman, and Dr. J. Mercier Green, secretary.——Dr. Edwin P. Derrick has been elected a member of the board of health of Lexington.——At the reorganization of the board of health of Anderson, Dr. Joseph O. Wilhite was elected chairman and Dr. J. Bennett Townsend, secretary.

TENNESSEE

Personal.—Dr. Edwin B. Anderson has been elected chief of the summer medical staff of Erlanger Hospital, Chattanooga, vice Dr. Henry Berlin, and Dr. J. Jefferson Gee has been elected secretary of the staff.——Dr. George E. Hatcher has been appointed assistant superintendent of the Central Hospital for the Insane, Nashville.

Hospital News.—Dr. George W. Hubbard, dean of Meharry Medical College, Nashville, announces that the work on the new George W. Hubbard Hospital will soon be commenced. The building will have cost $50,000 when completed.——At a meeting of the Chattanooga Tuberculosis Sanatorium Association, March 9, an eighty-acre tract of land near Tyners, donated by the City Water Company, was accepted, and a committee was appointed to raise funds for improvement of the site and the erection of buildings thereon.

TEXAS

District Society to Meet.—The Northwest Texas Medical Association will hold its annual meeting in Wichita Falls, April 12 and 13, under the presidency of Dr. Wade H. Walker, Wichita Falls.

Medical Society Organized.—At a meeting of the local physicians, March 24, the Nacogdoches Medical Society was organized, with Dr. Joel H. Barham, president; Dr. John H. Reagan, vice-president, and Dr. Robert P. Lockey, secretary-treasurer.

Quarantine Station Completed.—The state health officer, Dr. William M. Brumby, reports that the Galveston Quarantine Station is now completed. It now includes a modern hospital, wharves and slips, and is now prepared to cope with any emergency that might arise.

Personal.—Dr. Morris Boerner has resigned as a member of the staff of assistant physicians of the State Lunatic Asylum, Austin.——Dr. H. Powell Luckett has resigned as city physician of Bastrop.——Dr. Thomas J. Milner, Greenville, has been reelected health officer of Hunt county.——Drs. Thomas W. Moore and Otto Ehlinger, LaGrange, were painfully injured in a runaway accident, February 12.——Dr. Paul Renger, health officer of Hallettsville, was operated on recently in Cuero for appendicitis.——Dr. L. C. Logue, Columbus, has been appointed a member of the staff of assistant physicians of the State Lunatic Asylum, Austin.

VIRGINIA

Railway Surgeons Coming.—The Association of Southern Railway Surgeons will assemble in Richmond May 24, for its fifteenth annual meeting, under the presidency of Dr. Charles H. Starkel, Belleville, Ill.

Dentists Must Have Medical Education.—Last week the state legislature passed a law requiring that all dentists entering the state to practice after Jan. 1, 1914, shall have a medical education.

Legislative Appropriation.—The House of Delegates has appropriated $40,000 for the State Board of Health and $40,000 for buildings and improvements at the Catawba Sanatorium for Tuberculosis for the first year; for the second year, $20,000 is appropriated for the board and $27,000 for maintenance of the sanatorium.

Indictment Quashed.—An indictment recently returned by the Norfolk grand jury against Drs. J. J. McKanna, Jr., and Charles Lincoln, charged with practicing medicine without a license, was quashed in the corporation court, February 14, on the ground that the charges were not specific.——Dr. McKanna has, it is said, agreed to leave the state.

Personal.—Dr. Guy Hinsdale, Hot Springs, has returned from a visit to Europe.——Dr. Powhatan S. Schenck has been reappointed state quarantine officer at Norfolk.——Dr. Carlisle L. Nottingham, Cape Charles, has been appointed a member of the board of health of Northampton county, and surgeon-in-chief of the New York, Philadelphia and Norfolk Railroad.——Dr. Garland P. Moore and family, Cape Charles, have started for Japan.——Dr. Joseph N. Barney, Jr., Fredericksburg, has been appointed a member of the State Medical Board for the first congressional district.

WISCONSIN

New Tuberculosis Dispensary.—A free dispensary for tuberculosis was opened March 15, by the Society for the Care of the Sick, in Trinity Hospital Building, Ninth and Wells street, Milwaukee.

Sanatorium for Racine.—The city council has authorized the Racine Branch of the Wisconsin Antituberculosis Association to build and equip two cottages for the care of advanced cases of tuberculosis on the grounds of the present isolation hospital.

Personal.—Dr. Arnold H. Drexel, Milwaukee, has started for Vienna.——Dr. Hasse A. Meilike, Clintonville, has been reappointed a member of the State Board of Health and Vital Statistics.——Dr. William J. Allen, Beloit, has been appointed assistant health officer.——Dr. George N. Hidershide, Arcadia, who is under treatment at Winona Hospital, is reported as progressing favorably toward recovery.——Dr. Charles D. Packard, Rhinelander, who has been seriously ill with inflammatory rheumatism, is convalescent.——Dr. J. A. Drury, Peppin, has started for Europe.

GENERAL NEWS AND COMMENT

Dinner to Surgeon-General of Navy.—Surgeon-General Charles F. Stokes, U. S. Navy, was the guest of honor on March 29, at a dinner at the University Club, Philadelphia, tendered by Dr. Corbin J. Decker, U. S. Navy, at which a number of representative physicans were guests.

Canal Zone Physicians Meet.—The fourth annual meeting of the Canal Zone Medical Association was held at the Ancon Hospital, March 9. Dr. James C. Perry, Ancon, was elected president; Dr. Lloyd Noland, Cristobal, vice-president; and Dr. John W. Ross, Jr., Ancon, secretary-treasurer.

Transactions of International Congress Ready.—The general secretary of the Sixteenth International Medical Congress (Budapest) writes that the general transactions will be distributed to the members of the congress during April. According to the congress regulations, each member is to receive a copy of the general report as well as that of the section in which he was inscribed. They are to be accompanied by a work on "Protection of Child-Life in Hungary," presented to each participant in the congress by the Hungarian minister of the interior.

THE WELCH DINNER

Grand and Impressive Banquet Given to Prof. William H. Welch in Baltimore

The dinner to Prof. William H. Welch, held in honor of his election as President of the American Medical Association, at the Belvidere Hotel, Baltimore, April 2, was the most remarkable banquet ever held in Baltimore. It was attended by about four hundred and fifty men and women, and no one left until it was all over, at about 1 o'clock in the morning. There were many distinguished guests present, some coming from a considerable distance. Letters and telegrams were read from many others, including some warm friends in England and Germany.

The designated reason for the gathering was to congratulate Dr. Welch on his being President-Elect of the American Medical Association, but the occasion provided a delightful opportunity to Dr. Welch's many friends and admirers of expressing their love and esteem, and honoring him for his attainments as a scientist and a citizen.

Dr. Welch passed to the dining-room through a double line of his applauding friends, and the ovation which he received was a remarkable one, such as is rarely given to a private citizen. The dinner itself was most elaborate and gave abundant evidence of the extraordinary pains which had been taken over every detail. The beautifully decorated hall was adorned with spring flowers, each table in a different manner, and an orchestra provided music.

Dr. William S. Thayer was Toastmaster and he presided in a most happy manner, introducing each speaker with most appropriate words. We give below his introductory speech in full. The addresses were by Dr. S. Weir Mitchell who also read a poem which is printed below and which was received with great delight, Dr. William T. Councilman of Harvard University, Dr. J. A. Witherspoon of Nashville, Tenn., Dr. S. Alexander of New York, Dr. Henry Barton Jacobs, Maj.-Gen. Leonard Wood, and Dr. Abraham Jacobi.

Dr. Jacobi spoke in characteristic vein and we are fortunate in being able to present his remarks in full below. Professor Councilman was decidedly facetious, declaring that "no man should receive credit for what he is," and assumed for himself and his associates the responsibility for having made Dr. Welch the great man he is. His remarks were most interesting and decidedly amusing. He paid a high tribute to Professor Welch, declaring that "no man has ever heard him say evil of his fellows." He declared Dr. Welch to be "incorruptible," "unsalable," and a man whom his associates had learned to love.

Dr. Witherspoon spoke in his usual eloquent vein and named Dr. Welch the "father of scientific progressive medicine" and "the smartest man in the world."

Dr. Henry Barton Jacobs was announced as the man who proposed the dinner and was applauded with the hearty appreciation of the assemblage for his part in such a successful and important function. He stated that the medallion which was such a prominent feature of the occasion was suggested as the most fitting memorial to Dr. Welch by Dr. Rupert Norton of Johns Hopkins Hospital. All the lights were turned off except one and that one shone brightly on the medallion amid rousing cheers. The medallion is of gold and contains the words: "From His Friends." Large bronze copies have been made for presentation to the Johns Hopkins Hospital and to the Medical and Chirurgical Faculty of Maryland.

We are printing below a number of the speeches and it is a matter of regret that we cannot give in full the others, which were not delivered from manuscript. Keyed up to the high pitch of enthusiasm which the occasion demanded, every speech was a gem and combined to make the occasion one never to be forgotten by those so fortunate as to be present.

INTRODUCTORY ADDRESS BY THE TOASTMASTER, DR. THAYER

Colleagues and Friends:—At the outset, in the name of Maryland and Baltimore, let me greet you who have come from distant parts to join in doing honor to the friend to whom every one of us owes a personal debt of gratitude and affection. And then for us all, and for the many others who cannot be here, let me tell him what a happy moment this is for us.

Last June, as one of the friends who is not with us to-night has said, the American Medical Association elected its foremost member to the presidency. But 'twas not without difficulty, for his modesty had led him to hide for some time behind the armour of protecting technicalities. And it may as well be confessed that his presence here to-night was obtained only by strategy.

When, last fall, through the generous initiative of Ellis and Jacobs, there was called together a small group of Welch's friends and students who felt that they must have some opportunity to express that which filled their hearts, it fell to me to tell Dr. Welch our plans. Our modest suggestion was met by a categorical refusal. The invitation was finally accepted only on condition that the demonstration should be essentially a "home affair," and that the gathering should be as small as possible.

Dr. Welch, we have kept our word. This is the smallest gathering which could begin to express what we would say to you.

And now that we have our friend prepared, as it were, on the table, the orthodox procedure would be to enter on a minute and critical and objective dissection—to lay bare coldly his accumulated treasure. But alas, one must confess the impossibility of objectivity in such a case. And so, to use the formula of the wise man who has insisted so amusingly on the necessary subjectivity of all utterances, I shall now proceed to say a few words about myself, *apropos* of Dr. Welch!

I well remember the first time that I ever heard Welch's name; it was nearly twenty-three years ago. An honored instructor had advised me to buy a certain book on the practice of medicine, because, in addition to the many excellencies of previous editions, this last had been revised, and in many parts largely rewritten by a certain Dr. Welch, whom he regarded as the ablest physician in the country. Three years later, as I was on my way to take up my work in Baltimore, another instructor told me that he felt that the greatest privilege of life at the Johns Hopkins Hospital would be the proximity to Dr. Welch. He well remembered an involved discussion at a medical meeting at the end of which a young man of modest appearance arose and in a few, wise, simple, direct words cleared up the whole matter. He had been immensely impressed and had since regarded him as one of the most remarkable and ablest men in this country. How well to-day, do we all realize the justice of this observation.

At this time, twenty years ago, his influence which had been felt so deeply in New York, had already been quietly exercised in the selection of the original staff of the Johns Hopkins Hospital. Already, for five years, he had been at work in the laboratory, surrounded by a group of students whose names are all well known to-day. From that little laboratory, cramped and crowded, even when I first knew it twenty years ago, what an inspiration has gone forth! Although the contributions which have appeared under Welch's name have been relatively few, his influence has been felt in almost every great work which has been done in the last twenty years by American students.

In the old laboratory by his side in the early years worked Sternberg and Councilman and Booker and Halsted and Sewall and Nuttall and Mall and Abbott and Williams and Howard and Flexner and Hewetson and Barker and Reed and Cullen and Wright, and many others. And what suggestion and encouragement did we all receive from the delightful talks when the "Father," as we lovingly called him, passed from desk to desk, and from his words at the meetings of the little medical society in the hospital library. But that inspiration was for no small group of men. One by one these students have carried abroad his spirit and his teachings until there is scarcely a laboratory in this country that does not contain men who owe their success to that which Welch has given them.

How rich already are the fruits of his work!

It is to you, Dr. Welch, that Councilman owes the inspiration that has guided his useful and eminent career.

It was your teachings that led to the able work of Mall and indirectly to the establishment of his department of which we are so justly proud.

It was your student, McCallum, whose contributions to our knowledge of malaria have been referred to, by one of the most eminent students in this field, as the most brilliant since the discovery of the parasite.

Reed, Lazear and Carroll were all your pupils, and 'twas with you and your old student and co-worker, Sternberg, that Reed discussed and planned the greatest achievement of American medicine—the discovery of the transmission of yellow fever.

It is your student, assistant and colleague, Flexner, whose absence to-night we so deeply regret, who presides over that

great institution in New York, which the world owes to the generosity of Mr. Rockefeller. What a contrast, Dr. Welch, between that magnificent institution and your little laboratory—its legitimate mother. But, then, although this little lady is sadly in need of a new dress to-day, who knows what ova of promise she may still contain!

It is your student, Flexner, whose discovery of a protective serum against cerebrospinal meningitis is saving so many precious lives to-day.

It is to your wisdom and initiative more than to any other influence that are due any successes of the medical world started under your guidance.

These may be some of the notable results of your teachings and your influence, but they represent a small part of that which we owe you. The wide extent of your learning, and the kindly interest which you have taken in every one have brought it about that you have become the fountain to which all repair for counsel and advice. But such wisdom, such charity and kindness, such powers of judgment could not, of course, long remain the property of your students and associates alone. In matters medical you have become the general adviser of all. From one end of the country to the other no new departure is taken, no new laboratory is opened, no new chair is filled without your wise advice. How much the American Medical Association owes to your sage counsel as a member of the Board of Trustees no one will ever know.

As chairman of the Board of Health you have directly and indirectly brought more credit to the State of Maryland than almost any other living citizen.

In the oft-renewed contest with the forces of ignorance and fanaticism, allied too often, alas—unwittingly, let us hope—with influences purely sordid and vicious, you have been the fearless and masterly leader of the army of truth and light.

Not only in matters medical, but also in affairs of city and state do we seek your assistance, and one of your associates on the Charter Commission has recently testified to your growing "insight into the morbid activity of *Bacillus municipalis*."

Among the various other ways in which your helpful influence has been felt, there is one on which special comment should be made. You have set us all a brilliant and beneficent example as the master of the art of exposition. This talent depends not only on your clearness of thought, but on a rare power of expression—a power which amounts almost to genius. No one can express a thought so simply and clearly as you.

The chief art of the true master of language lies in his simplicity.

Maeterlinck says somewhere: "The poet adds to every-day existence a something—I know not what—which is the secret of poets, and straightway it stands forth in its prodigious grandeur, in its submission to powers unknown, in its infinite relations and in its solemn misery. A chemist lets fall several mysterious drops into a vase which seems to contain only clear water, and all at once 'tis filled with a world of crystals which reveal to us that which was held in suspense in the vase where our imperfect eyes had seen nothing. So, in Philoctetus, the meager psychology of the three main characters forms but the walls of the vase which holds the clear water of every-day existence into which the poet is to let fall the revealing drops of his genius."

The beautiful symbol of the chemist and the poet has been brought to my mind more than once in listening to your words or reading your sentences. How often have the "revealing drops" of your genius brought out the crystalline kernel from involved discussion or ill-comprehended observation.

But, after all, your greatest work lies in the personal example which you have set to the hundreds of students who have passed under your care. You have taught us a religion of earnestness and simplicity and directness—a religion of charity and of self-restraint, a religion of work, not of words. You have helped us to love truth for truth's sake, and above all, you have spread far and wide that enthusiasm without which all effort is vain.

We honor you for your achievements! We respect you for your learning! We love you for yourself! And one and all, we greet you here to-night, lovingly, gratefully and happily, as master, teacher and friend.

ADDRESS BY S. WEIR MITCHELL

Mr. Chairman, Gentlemen, and You, my Friend, the Sacrificial Victim of the After-Dinner Hour: Travel in strange lands is the more pleasant for knowledge of the language spoken, and it was the fact of my lack of tongues which made me doubt how fit I was to appear on this pleasant occasion, where, as I learned somewhat appalled, everybody was expected to talk *Welch*. To stumble bewildered an intellectual tenderfoot in the learned land of Johns Hopkins might certainly give any man pause, but in the court of wisdom there must be of necessity a fool, and so I accept the position of the provider of sentimental folly and make my little venture.

'Tis said that hovering near your infant couch
The fairy forms of Art and Science flew
In generous counsel o'er the golden gifts
They bade a joyous future pledge to you.

And if, they said, your life shall fail to give
What Bacon called the "hostages to fate,"
Unnumbered friends shall challenge love with love,
And ever through thy happy hours elate.

Fair Nature, coyest of all maids that hold
Reluctant mysteries from their lovers dear,
Shall on victorious quests divinely smile
And tell her secrets to thy listening ear.

Not yours shall be, companioned by the stars,
To soar through space on thought's ambitous wings
To worlds unseen; nay, yours shall be to roam
That wondrous other realm of little things.

There, half unread, the ever less and less
Lost in the lessening less, eludes our sight
In space as sunless and more dark with fate
Than are the baleful planets of the night.

There shall you stand upon the twilight verge,
Where fades the sight of each material thing,
And baffled wonder, what an hundred years
To other eyes than ours may haply bring.

A lilliputian world to thee we give,
Where deadly swarm the grim bacterial blights,
With amboceptors strange malignant priests
For demon marriage with satanic rites.

Here stegomyia and anopheles
Are huge behemoths of this lesser sphere
Where gay spirilla wriggle lively tails
And vexed erythrocytes grow pale with fear.

"Be these your friends," the flitting fairies cried,
"But who is this that leads a pirate crew?
"Bacterium chronos! Get you gone from hence,
"Or hungry leucocytes we'll set on you!"

A truce to folly. Long ago for you
Has rung the fatal hour of Osler's jest:
Still young, the merry smile, the glowing mind,
No least sad failure ever yet confessed.

Life's summer overflow reserves for you
The golden days of lingering life's September,
October loitering waits for you, my friend,
And summer-haunted glories of November.

Perhaps Johns Hopkins has some secret charm
That lets professors very neatly swindle
The robber time and feel enfeebling days
Toward youthful vigor quite reversely dwindle!

Alas, a most appalling doom awaits!—
A pediatric clinic at the end—
Pertussis, measles, teeth to cut, and then
The bottle—but which bottle? Ah! my friend,

We'll ask of Kelly, he will surely know
When comes at last your latest, earliest year,
With all of physiology at fault
How shall you ever gently disappear?

Far be the day for you. One grief I own,
What science won my art has something cost
Since the clear mind and ever-ready smile
Were to the bedside visit sadly lost.

Ave et vale! O, magister, take
Greeting and blessing from our greatest soul!
The rippling sweetness of his echoing verse
I seem to hear from that far century roll,

Too poor my rhyme to fitly entertain
The stately splendor of the Latin line;
Ah! happy he to whom this greeting went—
Thy spirit—kinsman, Harvey, makes it thine:

Vir doctissime!
Humanissime!
Mihi Carissime!
Vale mi' Amantissime!
Tuus ex anima.

THE ADDRESS OF DR. JACOBI

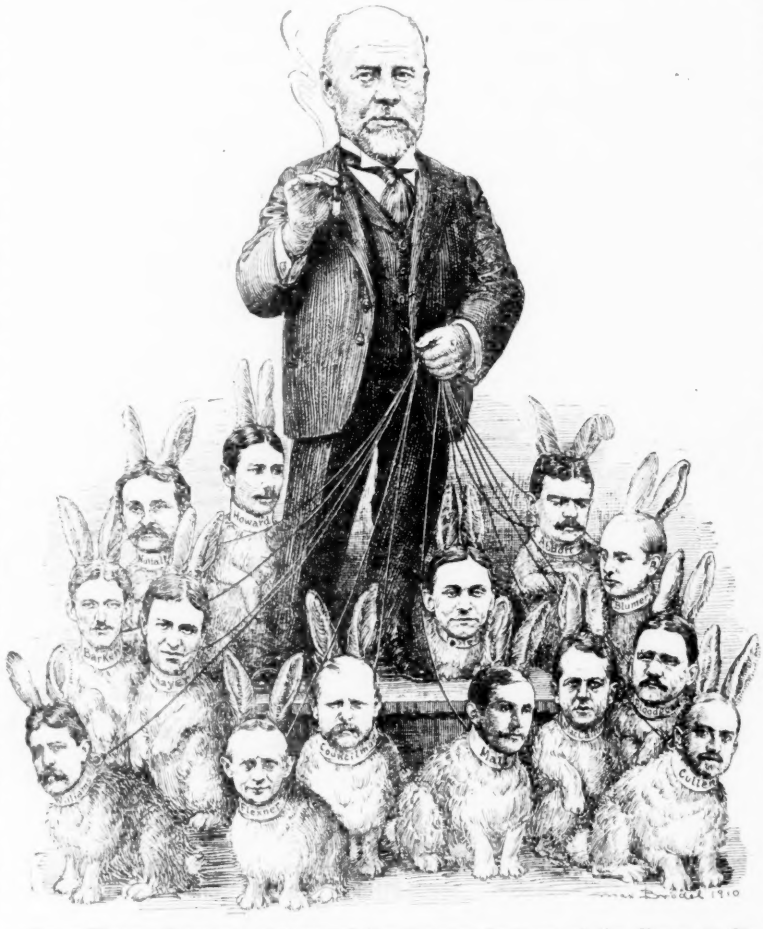
Dr. Abraham Jacobi spoke as follows:

There are some inquisitive people in New York. One asked me what business I had in Baltimore. New York was good enough for such as I. "Business?" The dinner. "The dinner! What dinner?" The Welch dinner. "For what reason is there a Welch dinner just now?" What reason? William H. Welch. "I mean what occasion?" The occasion is William H. Welch. When I asked him the names of two among the greatest luxuries, I received no answer. Now, in my opinion, they are, firstly, to dine with a great man, particularly when a lot of others, such as you, are thrown in; and, secondly, to speak of him as he deserves—preferably in his absence. But nobody wants him absent just now. But, after all, why can't a fellow hear the fine things said about a fellow before the fellow is dead? I shall let him down easy perhaps by talking of myself a little.

I knew Dr. Welch thirty-five years ago; we worked together in Bellevue Hospital. Remember, I speak of him as he was then. I appreciated his pathology and clinical medicine; but he was full of all sorts of knowledge. He is modest—cannot help it—was made that way; never obtrusive, but he would teach. Because he had knowledge, he was modest and gentle; gentle even to me, though I was only his superior; and, what is better, gentle to the sick. I then felt certain that he would be a great physician or practitioner, whose make-up always requires, though it does not always furnish, head and heart. Then again I thought after a while I had been mistaken. He disappeared, went to foreign countries. Virchow and Cohnheim were still teaching us pathology—they do still, for that matter.

He returned more learned, but also more cosmopolitan; more of a medical man, but still more of a man.

Thirty years ago I delivered, before a foreign-born society in a foreign language, an address on what had just been founded as Johns Hopkins University. There was the first promise of a real university, with an actual university spirit, broad, wide horizon, warm, fertile and fertilizing, spiritual and moral. For that is the quintessence of the ideal of a university; understood or not, that was ever the ideal of a university; not as a modern teacher of the east proclaimed only last year, in a lecture room of the far west—a place where all sorts of specialties are taught. At that distant time I could say that so far as I, though only a practitioner but an adorer of the university idea and ideal, could see, the accession of William H. Welch would prove a solid foundation of a brilliant future for Johns Hopkins and an example for the future of American institutions. There are those whom our father Homer had in view when he said that not to all will the immortals appear. What he meant, and what he knew, was that they appear to some. Here is one of them. You know what he has been to Johns Hopkins, to its spirit, to its medicine, to all medicine, from the very beginning of his participation in Johns Hopkins labors. From the very beginning he was positive, but wise, learned but never pedantic, strong but prudent, keen and warm; the owner of many properties belonging to the young and strong, and to the old and wise. There are those qualities of the heart and brain which are attributed to advanced years only. But this man had and has his peculiarities. Indeed he does not believe, nor do I for that matter, that wisdom and ripeness must wait for the progressive stages of sclerotic arteries or overphosphated bones or a curved spine—at least he did not wait.



SOME WELCH RABBITS.—As one of the pleasing features of the dinner to Dr. Welch, the above cartoon was distributed. The artist was Prof. Max Brodel of Baltimore, whose artistic work in the portrayal of anatomic specimens and surgical procedures has frequently appeared in THE JOURNAL. He has very happily represented Dr. Welch as still the guiding spirit for these famous workers. For the benefit of our readers we name the positions of the men referred to:

Dr. J. Whitridge Williams, Professor of Obstetrics at Johns Hopkins Medical School.
Dr. Lewellys F. Barker, Professor of Medicine at Johns Hopkins Medical School.
Prof. George H. F. Nuttall, University of Cambridge, England.
Dr. William T. Howard, Jr., Professor of Pathology at Western Reserve University.
Dr. William S. Thayer, Professor of Medicine at Johns Hopkins Medical School and toastmaster of the evening.
Dr. Simon Flexner, Director of the Rockefeller Institute, New York.
Dr. William T. Councilman, Professor of Pathology at Harvard University Medical School.
Dr. Eugene L. Opie, Associate at Rockefeller Institute.
Dr. Franklin P. Mall, Professor of Anatomy at Johns Hopkins Medical School.
Dr. William G. MacCallum, Professor of Pathology at Columbia University.
Dr. Alexander C. Abbott, Professor of Hygiene at University of Pennsylvania.
Dr. George Blumer, Professor of Medicine at Yale UniversityMedical School.
Dr. Joseph C. Bloodgood, Associate Professor of Surgery at Johns Hopkins Medical School.
Dr. Thomas S. Cullen, Associate Professor of Gynecology at Johns Hopkins Medical School.

He never was a medical man only; a small part of medicine may nowadays fill the measure of many an alleged big man. Things were different one or two centuries ago. Then it was easy enough for a vast mind, endowed with sedentary habits and gluteal muscles, to carry a gold-headed cane, practice medicine according to the latest system and edit Greek or Latin incurables. A portentous doctor could be an erudite philologist and prove it. Nearer our times, Rush could sign our independence, and was, all by himself, an army surgeon, a busy practitioner, a prolific author and run mad over Brown. Cordell tells us that in the winter of 1789-90, George Buchanan taught in Baltimore the diseases of women and children and Brownianism: Wiesenthal anatomy, physiology, pathology, surgery, and the gravid uterus. They do not do that in Johns Hopkins any more. Their sins, if any, lie in different directions. But, cheer up, gentlemen, worse is to come. Holmes and Mitchell run off with Apollo to Parnassus and flirt, aye more than merely flirt, while we stand by applauding with a harem full of females, but they were nurses.

And Welch? Those who know him best, know what he has done for medicine. Medicine as a service, medicine as a part of biology and *vice versa*, and that he has worked assiduously—for life is but a song, and is wondrous long—effectually and accurately. But his accuracy was never a pharisaical fetish and no man ever lived who relied less extensively than he on the superstitious beatitude created by the actual or alleged single observation made by bending over a system of lenses only. What I always saw in him was of a different nature altogether.

When I was a boy Homer taught me that Podalirius and Machaon, the physicians of the besieging army were the most revered men, for a "healing man was to be esteemed as highly as a host of others;" by Xenophon that Socrates expected the welfare of the community to be safeguarded by doctors; later, by Descartes and Kant, that the refinement and culture of mankind must come from the teachings and practice of medicine; by our father Hippocrates, that where there is a love of medicine there is love of mankind. So I understand and applaud Welch. He is a great doctor, but a greater man. Medicine never was to him identical with one of the branches, or with the results of one or more surgical observations or revelations; not even the protection, valuable though it be, of an individual life. To him medicine has been the sum total of the physiologic knowledge of man and of the creation, and their history of the means of curing an individual accident; it is true, but more of preventing individual disease and morbidity and mortality, and those of the commonwealth, of guarding mankind against human waste by the prolongation of life, of making life in all ages, sexes, colors and stations bearable and enjoyable. That in view, he became a master in and presided over the Board of Health of Maryland; for that reason and for his universal fame whoever in these United states wants aid or counsel or direction, applies to Welch. That in view, he has created or caused to create a new charter for the administration of this big and warm-hearted city—he the learned pathologist, the great physician, the ripe statesman, the good citizen, *facitlime princeps*, the dear good man.

THE RESPONSE OF DR. WELCH

When Dr. Welch rose to reply to these hearty expressions, he received another ovation and his manner showed how deeply he was touched by the events of the evening.

After expressing his thanks and grateful appreciation for the honor bestowed by the large gathering of physicians and friends, for the medallion portrait and the tributes of the various speakers, Dr. Welch said, in part: "While I am only too conscious that in the speeches and messages to-night the value of such service as I have been able to render to American medicine has been overestimated, it is true that I have had large opportunities for such service. These opportunities I owe to the profession, and it is of my debt to the profession that I wish especially to speak on this occasion. Every man owes a duty to his profession, and I should have been ungrateful indeed and recreant to a high trust if I had not endeavored to repay within my abilities the confidence reposed in me.

"The presence of Dr. Delafield at my right hand recalls my teachers and the large debt of gratitude which I owe to them. Whatever the defects of medical education in those days such teachers as these inspired their pupils with zeal and enthusiasm and high ideals. To Dr. Delafield I owe my first introduction to pathologic anatomy and his summer course with practical demonstrations awakened a lively interest, which became a genuine enthusiasm during my internship at Bellevue Hospital, where I was so fortunate as to come also under the inspiration of Dr. Janeway. In the wards of Bellevue Hospital I learned from Dr. Jacobi something of the thoroughness and spirit of German science."

Dr. Welch also spoke of his debt to his teachers in Germany and of the close ties formed with the profession in New York during his six years of connection with the Bellevue Hospital Medical College, where he said his chief delight was then, as it has continued to be, the teaching of students in the laboratory.

Grateful acknowledgement was made of the cordial reception by the profession in Baltimore and of his debt to the Johns Hopkins University and Hospital, where opportunities, previously unequaled in this country, were offered for the advancement of medical education. He expressed his good fortune in his associates and assistants, such men as Councilman, Abbott, Flexner, Barker and MacCallum, and the share of his colleagues in developing the medical school. It had been a privilege to participate in civic life, and to assist in the public health work of Maryland. While he regretted the dissipation of energy in undertaking so much outside work, it had been a great satisfaction to take part in the organization and development of the Rockefeller Institute for Medical Research. He said: "I have been highly honored by election to the presidency of the American Medical Association, the representative organization of the entire profession of this country. During the past decade the results accomplished by this association in the organization of the profession for higher standards in varied fields of medical activity have been perhaps the most significant event in American medicine. The Association should receive the loyalty and active support and cooperation of all physicians who have at heart the best interests of the profession and the advancement of American medicine."

After speaking of the educational and scientific progress of medicine during the past quarter of a century, and of the work of the physician in the future, particularly in preventive medicine, Dr. Welch, in closing, said:

"The attractions of a career in life lie in the opportunities it offers, in the congenial character of the work involved and the rewards to be gained. The profession of medicine is unsurpassed in its opportunities for service to one's fellow men. The manifold fields of activity now opened to the medical man appeal to the most varied personal inclinations and aptitudes, be these practical or scientific. The rewards of success, even of the highest success, are not in money. They are the intellectual pleasure which the physician finds in his work, the consciousness of service in the relief of suffering and the cure and prevention of disease, or it may be that highest satisfaction, some contribution to the advancement of useful knowledge, knowledge perhaps directly applicable to the healing of the nations.

"A reward to be dearly prized, but which has been conspicuously lacking for some of the great geniuses of our profession, is the expression of the esteem and good will of one's contemporaries of the profession and of the community. This highly prized reward has come to me to-night through your kindness and recognition, over-generous though they be, in overflowing measure, and in a form inspiring and never to be forgotten by me, which has touched my heart with profound gratitude, and which, I trust, will animate me with stronger desire to show, if I may, some return by increased devotion to high ideals of efficiency and service in such work as may remain for me to do."

In conclusion, the band played "Auld Lang Syne," in which all joined, standing, and the way it was sung showed that auld acquaintance could not be forgot.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, March 16, 1910.

Bill for the Regulation of Social Insurance

The new bill for regulation of compulsory insurance which is to reform the social legislation of Germany and which has been awaited with great interest by the German medical profession has now appeared. As I mentioned in a previous letter, the provisions of the bill first proposed, which provided for regulating the relations between the Krankenkassen and their medical officers, designed to hinder the constant strife between these two parties, met with energetic opposition on the part of medical men. Especially after the unanimous declaration of the Lübeck session of the medical association that the German physicians would not cooperate in carrying out the social legislation unless various demands were met in the new law, it was to be hoped that the government would accede to the wishes of the medical profession, but the upper limit of an income of $500 for the insured has not been generally established; exceptions are made in the case of laborers, helpers, companions, apprentices and servants. These are included in the provision for free Krankenkassen treatment even if their annual wage exceeds the sum of 2,000 marks. Further, as provided in the first bill no physician may be prosecuted on account of infringement of medical ethics or of his duty to the medical profession, if he has made a contract with the Krankenkassen under conditions which conform to the statutes. With reference to the urgent demand for free choice of physicians by the insured the government gives regulations both for the free choice of physicians and also for making contracts with special insurance physicians. The formation of contract committees, which shall serve to prevent misunderstandings and to settle such as already have arisen is provided for in the bill, and this is really of no little importance. These committees will be so much the better fitted for their task as they consist of representatives from both parties in equal numbers selected by the societies and by the physicians immediately interested in their practice. There is no doubt that the German medical profession will not be content with the improvements found in the new bill, and it is to be expected that they will engage with the same energy against the faulty provisions still remaining in this second bill as they did against the first. Their efforts must now be directed to the other legislative body, the Reichstag.

Pharmacists and Physicians

The medical council for West Prussia at a recent session resolved to ask the pharmacists' council of the province to require pharmacists not to give patients with the medicines prescribed by physicians any advertisements of other remedies.

Frequently paper containing advertisements, which is furnished to the pharmacists by the manufacturers free, is used for wrapping medicine bottles, boxes, etc. On the other hand, the pharmacists' council has requested the medical council that physicians abstain from indicating a preference for a particular pharmacist, which is forbidden by law, and it also requests that physicians should write their prescriptions plainly, and in large cities have their names printed on the prescription blanks, so as to prevent injury to the pharmacists.

Pharmacology

AMERICAN DRUGGISTS SYNDICATE

The Capital Stock Is Increased and Physicians Are Invited to Come In

Since the last article[1] in THE JOURNAL dealing with the American Druggists Syndicate appeared, this cooperative "patent medicine" concern has increased its capital stock to $2,500,000. In the notice sent out by the A. D. S. calling for a special meeting of the stockholders to consider the question of increasing the stock, the statement was made that "it is our purpose to enlist the active cooperation of the honest physician, notwithstanding the opposition of the traitorous hypocrites editing certain medical journals." This last clause, we believe, has a personal element. The increase in capitalization having been accomplished and a vast amount of stock created, physicians are now being appealed to, through a small pamphlet, to purchase at $10 a share the common stock of the concern. Should the "Orangeine" or "Lydia Pinkham" people ask physicians to purchase their stock and participate in the unholy profits that accrue from the sale of these nostrums the protests from an indignant profession would be no more numerous and outspoken than those which have poured in on THE JOURNAL since this A. D. S. pamphlet has reached the physicians of the country. In the booklet, which is entitled "Millionaire-Makers for Others," the A. D. S. calls attention to the vast profits that have been created from the sale of Doan's Kidney Pills, Lydia Pinkham's Compound, Swamp Root, Laxative Bromo Quinin, and other nostrums, and urges physicians to purchase stock in the American Druggists Syndicate so that a competing line of nostrums may be marketed and the physician himself get some of the profits.

SUBSTITUTION THE KEY-NOTE

There is "only one way to eliminate the nostrum evil," says the A. D. S., and that is "to make the advertising of such products unprofitable to the manufacturer." How this is to be brought about is explained in a way that must make honest druggists blush. Substitution is the method. " . . . it is only necessary to give the druggist an opportunity to offer a safe and legitimate product [that is to say an A. D. S. substitute] whenever a product of the other kind is called for." If the A. D. S. is to be believed, substitution is a widespread accomplishment: "Leading druggists are authority for the statement that they can sell such legitimate products [A. D. S. preparations] to seven out of ten who otherwise might be induced to use dangerous ones." Of the ten, the three individuals who know what they want when they want it, can be finally landed in the A. D. S. net "through intelligent literature [whatever that may be] to be given them with the packages they insist on."

Resolved to simpler terms it means that the druggist who is a member of the A. D. S. should endeavor to get the customer who wants "Antiphlogistine" to take "A. D. S. Anti-Inflammatus;" he who desires "Paine's Celery Compound" to accept "A. D. S. Celery Compound;" he who feels the need of "Bromo-Seltzer" to be satisfied with "A. D. S. Effervescent Bromo Headache Salt;" he who pines for "California Syrup of Figs" to be content with "A. D. S. Fig Syrup Compound," and she who calls for "Lydia Pinkham's," to take instead "A. D. S. Pelvitone."

THE PHYSICIAN'S PART

And where does the physician come in? If he is a stockholder in the A. D. S. he is "given an opportunity to share equally with druggists in the profits derived from the sale of the legitimate [?] products offered by this organization." In other words the druggist is to substitute, the public is to dope itself, and the medical profession is to participate in the financial rewards that come from such a combination.

Should the physician wonder whether this self-drugging on the part of the public would not have a financially deleterious effect on his practice he is assured that the A. D. S. remedies include "only such medicinal articles as would be least likely to conflict with the interests of physicians." Nothing is said of the fact that practically the only A. D. S. preparations advertised are its rankest nostrums: Pelvitone; Kidney Remedy; Cold and Grippe Remedy; Rheumatic Remedy, and so on. Neither is it acknowledged that should the nostrum element be eliminated from the activities of the American Druggists Syndicate the whole structure would collapse.

And the ethics of it? Well, we are told that:

> "The physician or pharmacist who allows his conception of ethics to prevent him from providing for the material wants of his family and for their future welfare by a fear of being accused of commercialism is lacking in good judgment."
>
> "Old worn-out moth-eaten notions of ethics should not prevent honorable physicians and pharmacists from working in harmony for the increase of the legitimate profits of both professions."

DISPENSING PHYSICIANS, BEWARE!

An interesting sidelight, in that it contains a veiled threat, is to be found in this A. D. S. booklet. The dispensing physician is the text of the story. Such a physician, we are told, lived in a small town and, although there were two excellent drug stores, he would not write prescriptions. What happened? The druggists "held a conference and soon decided what they would do to teach the physician a lesson. They employed a bright and competent [nothing said about honor!] young physician to write free prescriptions and make free professional calls. It took only about three weeks to convince the first doctor on the ground that he would soon be starved out of the field if he did not make peace with the druggists." The physician, then, we are told, went to the druggists, acknowledged the error of his ways and promised to be good ever after. As the A. D. S. pamphlet adds: "This is intended only as an illustration of what could be done by pharmacists in extreme cases, if they found it necessary, as it was in this instance."

We presume the object of this story is to engender the same kindly feeling between physicians and druggists as must be developed between members and non-member druggists by those A. D. S. advertisements which, by inference, inform the public that the only way to be sure it is getting pure drugs is to patronize a member of the American Druggists Syndicate.

Altogether, the pamphlet, and its message to physicians, cannot be described in language more pertinent and fitting than that used by one of THE JOURNAL'S correspondents, who characterized it as "truly a monumental bit of impertinence."

1. Previous articles dealing with the A. D. S. have been reprinted in pamphlet form. This will be sent to those who want it. Enclose a stamped addressed envelope with request.

Correspondence

Excretion of Hexamethylenamin

To the Editor:—In THE JOURNAL, March 12, there appeared an article by Dr. Barton on the excretion of the decomposition product of hexamethylenamin by the mucous membrane of the ear. After reading this article it occurred to me that if formaldehyde is excreted by the mucous membrane of the ear, possibly it is also excreted by the mucous membrane of the bronchi, and also perhaps in the alveoli of the lungs.

To test this, I administered the drug to a patient with chronic bronchitis who happened to have at the time mucopurulent expectoration; after three doses, the character of the expectoration changed from mucopurulent to mucoid, and after six doses the quantity was very much diminished. A portion of the sputum tested after three doses had been admin-

istered gave a positive reaction in a very short time. A specimen after the sixth dose also gave a positive reaction, but only after several hours.

At my request, Dr. Percy Smith, the superintendent of the District of Columbia tuberculosis hospital, is testing it in advanced cases of tuberculosis, with the idea of checking the profuse purulent expectoration and, perhaps, of rendering it sterile. I feel that great results may possibly be obtained.

GEORGE H. HEITMULLER, Washington, D. C.

The Cutaneous Reaction to Tuberculin

To the Editor:—It has been the practice at the New Mexico Cottage Sanatorium to use the Detre differential test in all our patients on admission, our purpose being to acquire data as to the reliability of the test. In connection with the cutaneous test I have several times observed a curious phenomenon and have not noticed that it has been reported heretofore. If it has not I would like to take this opportunity to record it.

Months, and in one instance a year, after the performance of the test, a dose of tuberculin will be reached which will give rise to a very slight reaction and following the reaction, or coincident with it rather, there is at once a recrudescence of all the phenomena at the sight of the old skin test, acting very much as though the individual had had a second cutaneous application of tuberculin.

E. BULLOCK, M.D., Silver City, N. M.

Association News

THE ST. LOUIS SESSION

Announcement of Reduced Railroad Rates Secured and Special Trains Arranged

The Committee on Transportation and Place of Session submits the following report concerning rates and trains to the St. Louis session in June:

RAILROAD RATES

The Central Passenger Association and the Western Passenger Association, which include all railway lines operating in the states of Ohio, Michigan, Indiana, Illinois, Iowa, Wisconsin, Minnesota, North and South Dakota and Missouri, will make a rate of one fare and a half for the round trip, tickets to be sold June 4 to 8, inclusive. The return limit is June 20, with provision for extension of the limit to July 20 if ticket is deposited with joint agent at St. Louis and deposit fee of $1 paid by the passenger.

The Trunk Line and New England associations, which include all lines operating in the states of Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, Pennsylvania, New Jersey, West Virginia, Delaware, Maryland and the District of Columbia, have authorized a round-trip rate of one fare and a half, tickets to be sold June 3 to 6, inclusive. The return limit is June 20, with provision for extension to July 20 by deposit of ticket and payment of deposit fee of $1.

The Trans-Continental Association has authorized a one-fare rate of $67.50 from all California points, tickets on sale June 3, 4 and 5; the return limit is three months. The same rate is to apply from North Pacific coast points in Oregon and Washington, tickets to be on sale June 2 only; the return limit is three months from date of sale.

So far, the Trans-Missouri Association, which includes lines operating in Kansas, Nebraska, Wyoming, Colorado and New Mexico, has made no reduced rates, nor have the South Western or South Eastern associations, except that the South Western has authorized a rate of a fare and a half from southern Missouri.

It is hoped that rates may yet be obtained from the territory embraced by these associations, and further announcement will be made by the committee concerning them later.

Considering the territory covered, these are the best rates which the Association has had since the two-cent laws went into effect.

SPECIAL TRAINS

The following special trains have been arranged:

A day train over the Chicago and Alton road will leave Chicago Monday, June 6 at 9 a. m., arriving at St. Louis about 5 p. m., in ample time for members to get located in their hotels for the night.

This train will be composed of reclining chair cars for those who do not wish to patronize the Pullman parlor cars, a library club car with buffet, dining car, Pullman parlor cars and observation car. This train will provide a beautiful ride through the state by daylight.

A night special will leave Chicago over the Chicago and Alton road at 11:30 p. m., arriving at St. Louis about 8 a. m. This train will consist of reclining chair cars (if desired) without extra charge, club cars with buffet and Pullman drawing-room sleeping cars.

These special trains from Chicago will stop at Joliet, Dwight, Pontiac, Chenoa, Bloomington, Atlanta, Lincoln, Springfield, Carlinville and Alton to pick up members and will make any other intermediate stops if previous notification is given that members wish to board the trains.

Members may leave Peoria at 12:20 p. m. on the Chicago and Alton, connecting with the special at Springfield.

Special trains will leave Kansas City over the Chicago and Alton road on Monday, June 6, at 9 a. m. and 11:30 p. m. the former making a day run through Missouri, arriving at St. Louis at 5 p. m., and the latter a night run, arriving at St. Louis at 8 a. m. In their makeup these trains will be the counterpart of the trains between Chicago and St. Louis and will stop at the following Missouri stations: Independence, Odessa, Higginsville, Marshall, Slater, Glasgow, Higbee, Centralia and Mexico and at intermediate points if previous notification is given that members wish to join the trains.

From Minneapolis and St. Paul a special train will be run over the Chicago, Milwaukee and St. Paul road to Chicago, and from Chicago to St. Louis over the Chicago and Alton.

A special train, or special drawing-room sleepers set aside for the exclusive use of members, will be run over the Toledo, St. Louis and Western (Clover Leaf line) leaving Toledo, Ohio, at 7:15 p. m. and arriving at St. Louis at 8 o'clock in the morning. This train will stop at Continental, Delphos and Ohio City, Ohio, and Decatur, Marion, Kokomo, Frankfort and Veedersburg, Ind., and Charleston, Ill. Stops will be made at other points if previous notification be given that members wish to take the train.

A special train, or cars as may be needed, has been arranged to run over the New York Central system, including the Boston and Albany from Boston. This train, which will stop at prominent intermediate points, will leave Boston and New York in time to reach St. Louis early Tuesday morning, June 7.

Arrangements have been made so that through tickets over the New York Central lines from Cleveland and all points east thereof may be exchanged in St. Louis at the city office of the Chicago and Alton for return trip by way of Chicago over the Chicago and Alton line, with stopover at Chicago. Likewise, tickets reading "by way of Chicago and Chicago and Alton" may be exchanged for return trip by direct route over New York Central lines.

Further information concerning reservations on any of these trains will appear in THE JOURNAL later.

M. L. HARRIS, Chairman,
Committee on Transportation and Place of Session.

The Section Meeting Places

The St. Louis Committee on Arrangements sends the following announcements:

The section meeting places are located on Grand avenue and on streets interesecting Grand avenue. Those meeting places located on intersecting streets are not more than 300 feet distant from Grand avenue. This distance between the extremes of the district is about one-half mile, but all are in close proximity to other halls, and special attention was given to grouping correlated sections.

The only hall that is not in the Grand avenue district is the Coliseum, where the Registration Bureau, the Commercial and Scientific Exhibits, the Postoffice, etc., will be located.

No hall in the midst of the meeting places was large enough to accommodate these departments.

The street car facilities are most excellent, cars running at two and three minute intervals, and arrangements are being made for special service on occasions when the members will travel in large bodies at any particular hour. Taxicabs will also be at hand, and a special rate will be allowed for transporting the members from the Coliseum, where the Registration Bureau will be established, to the Grand avenue district.

The section and other meeting places are as follows:

MEDICINE: Third Baptist Church, Grand and Washington Aves.

SURGERY: Odeon Theatre, Grand and Finney Aves.

OBSTETRICS AND DISEASES OF WOMEN: Y. M. C. A. Building—Association Hall, Grand and Franklin Aves.

LARYNGOLOGY AND OTOLOGY: Sodality Hall, Grand Ave., between Pine and Laclede.

OPHTHALMOLOGY: Aschenbroedel Hall, 3535 Pine St.

DISEASES OF CHILDREN: Grand Avenue Presbyterian Church, Sunday School Room, Grand and Washington Aves.

PHARMACOLOGY AND THERAPEUTICS: Delmar Avenue Congregational Church, Delmar, west of Grand Ave.

STOMATOLOGY: Y. M. C. A. Building—Small Hall, Grand and Franklin Aves.

NERVOUS AND MENTAL DISEASES: St. Louis University Library, Grand Ave., head of East Pine.

DERMATOLOGY: Odeon Bldg—Recital Hall, Grand and Finney Aves.

PREVENTIVE MEDICINE AND PUBLIC HEALTH: Knights of Columbus Bldg., 3549 Olive St.

PATHOLOGY AND PHYSIOLOGY: Y. M. C. A. Building—Lecture Hall, Grand and Franklin.

SCIENTIFIC AND COMMERCIAL EXHIBITS, POSTOFFICE, REGISTRATION OFFICE: Coliseum, Washington and Jefferson.

PRESIDENT'S RECEPTION: First Regiment Armory, Grand and Manchester Aves.

GENERAL SESSION: Odeon Theatre, Grand and Finney Aves.

HOUSE OF DELEGATES: St. Louis Medical Society, 3524 Pine St.

The Committee on Section Meeting Places will endeavor to have all halls fully equipped with every needed appurtenance to facilitate the transaction of the work of the sections. Communications on this subject should be addressed to Dr. H. Tuholske, Chairman of the Committee on Section Meeting Places, 609 Metropolitan Building, St. Louis.

Good Weather Probable

The Committee on Arrangements desires to assure the members that the weather in the early days of June is delightful. According to the records of the Weather Bureau the temperature for the first ten days in June varies from 70 to 80 degrees. There need be no fear of extreme heat in St. Louis during the period of the session. The Committee on Arrangements wishes this information widely disseminated.

E. J. GOODWIN, Secretary,
Committee on Arrangements.

NEW MEMBERS

List of new members of the American Medical Association for the month of March, 1910:

ALABAMA

Banks, M. J., Jackson's Gap.
Foshee, R. A., Alexander City.
Henderson, H. H., Bolling.
Kimbrough, T. G., Thomaston.
McCown, W. S., Hazel Green.
Rudulph, C. M., Birmingham.

ARKANSAS

Brunson, Asa, Pine Bluff.
Dickson, Paul L., Paragould.
Harrison, A. G., Kensett.
Hartsell, W. L., Draughon.
Lunsford, C. B., Chickasawba.
Powell, J. W., Springfield.

CALIFORNIA

Abrahamson, Milton, San Francisco.
Beyer, Herman, Oceano.
Chadwick, F. C., San Francisco.
Cook, W. H., McKittrick.
Davis, F. J., Oroville.
Etcheverry, M. H., San Francisco.
Evans, T. J., Loma Linda.
Fellows, Alfred, Los Angeles.
Fielding, G. A., Sawtelle.
Hunter, G. G., Los Angeles.
Joyce, Elizabeth F., Winters.
Julien, E. H., San Francisco.
Leech, C. R., Walnut Creek.
Lewitt, F. C., San Francisco.
Nichols, H. L., Sacramento.
Osborne, A. E., San Juan Bantista.
Taussig, Edward, San Francisco.

COLORADO

Andrew, John, Longmont.
Burnett, A. L., Silverton.
Campbell, L. D., Denver.
Carey, J. D., Timnath.
Peabody, J. R., Colorado Springs.
Wiest, Roy, Estes Par

CONNECTICUT

DeBonis, Domencio, Hartford.
Gilmore, J. L., West Haven.
Swett, P. P., Hartford.

DISTRICT OF COLUMBIA

Garnett, A. G. P., Washington.
Strobel, Mary L., Washington.
Walter, W. F., Washington.

FLORIDA

Campbell, E. T., Citra.
Kinsey, J. P., Pinetta.
Martinson, Elsie M., Tampa.
Mitchell, L. D., Tampa.
Paul, L. H., Caryville.

GEORGIA

Abercrombie, T. F., Dallas.
Adams, H. P., Savannah.
Collins, Katharine R., Atlanta.
Fincher, E. F., East Atlanta.
Scott, A. R., McDonough.
White, T. E., Fitzgerald.

IDAHO

Allen, C. S., Atlanta.

ILLINOIS

Aiton, Mary H., Summer Hill.
Aschauer, H. A., Springfield.
Barnsback, R. S., Edwardsville.
Baxter, A. C., Springfield.
Bernard, E. L., Springfield.
Bullard, R. L., Springfield.
Caldwell, J. C., East St. Louis.
Compton, C. W., Springfield.
Corr, Lucinda H., Carlinville.
Crain, C. H., Chicago.
Deichmann, O. H., Springfield.
Doane, G. H., O'Fallon.
Doerann, A. F., Chicago.
DuMars, E. C., Peoria.
Fishman, C. J., Chicago.
Franz, C. H., Aurora.
Gammage, A. E., Chicago.
Gibson, E. P., Louisville.
Gill, P. W., Chicago.
Hall, T. H., Gillespie.
Harlan, L. C., Madison.
Haskell, W. A., Alton.
Hayes, R. H., Chicago.
Hoover, F. B., Chicago.
James, A. C., Springfield.
Jenkins, H. E., Forest Park.
Joyce, W. M., Chicago.
Kerchner, F. W., Glen Carbon.
King, C. D., Gillespie.
Luzader, Katherine B., Greenville.
Mansfield, W. A., Washington.
Matthew, J. B., Blue Mound.
Mautz, G. J., Springfield.
Maxon, O. F., Springfield.
May, L. J., Cobden.
McQuillan, A. B., E. St. Louis.
Menoher, J. A., Speer.
Millard, J. L., Grand Ridge.
Milligan, C. W., Springfield.
Morgan, T. W., Virden.
Nelson, C. S., Springfield.
Oliver, A. H., Edwardsville.
Page, T. H., Peoria.
Parks, Jennie W., Cuba.
Reis, Jr., Henry, Belleville.
Renner, C. P., Belleville.
Roberson, W. H., Mt. Carmel.
Stanton, F. W., Joliet.
Stanton, R. F., E. St. Louis.
Turner, J. A., Waukegan.
Wagner, T. H., Joliet.
Wallace, J. W., Aledo.
Weil, Albert, Peoria.
Willard, F. W., Chicago.
Wolfe, J. A., Chicago.
Wright, H. G., DeKalb.

INDIANA

Anderson, J. C., Indianapolis.
Baker, R. E., Orleans.
Born, H. K., Indianapolis.
Barris, E. W., Indianapolis.
Dunham, W. F., Kempton.
Elliott, J. C., Guilford.
Goodale, A. W., Orland.
Gordon, E. R., Hobart.
Green, W. L., Pekin.
Greenwald, W. C. E., Indiana Harbor.
Hollis, W. A., Hartford City.
Lakin, A. N., State Line.
Levi, W. D., Jeffersonville.
Mathys, Alfred, Mauckport.
Null, L. S., New Haven.
Pell, G. M., Carbon.
Peters, D. C., Greentown.
Province, O. A., Franklin.
Rozelle, C. C., LaGrange.
Tilson, S. M., Indianapolis.
Vigus, C. B., Point Isabel.
Winans, H. M., Muncie.
Worster, W. W., LaFayette.
Wright, U. A., Coatesville.

IOWA

Bowie, L. L., Moorhead.
Houston, Bush, Montezuma.
Lovett, I. M., Lineville.
Parsons, I. U., Malvern.
Powell, V. E., Red Oak.
Stalford, G. A., Radcliffe.
Stoakes, C. S., Battle Creek.
Throckmorton, R. F., Derby.

KANSAS

Clarkson, W. H., Manhattan.
Duncan, F. W., Coffeyville.
Kenner, J. J., Lawrence.
Knowles, H. P., Mound City.
Mahan, R. S., West Mineral.
Newkirk, Jessie Slavens, Kansas City.
Nichols, W. J., Pittsburg.
Tanquary, E. D., Little River.
Wallace, F. E., Chase.
Whitfield, R. J., Ft. Scott.

KENTUCKY

Brandon, R. W., LaFayette.
Bruce, E. T., Louisville.
Carum, J. R., Ashbyburg.
Duvall, C. H., Warsaw.
Godbey, D. M., Perryville.
Greenleaf, P. E., Louisville.
Henderson, E. L., Louisville.
Hohnstedt, J. H., Ft. Thomas.
Kelly, Harris, Louisville.
Lewis, R. H., Wildie.
Little, W. T., Calvert City.
Marshall, T. J., Bardwell.
Overall, A. C., Mt. Washington.
Phillips, H. J., Louisville.
Ramey, W. G., Carter.
Reynolds, B. F., Carlisle.
Sparks, J. C., Willard.
Warren, J. P., Lexington.
White, G. W., Oakland.
Wiliams, D. J., Ford.
Williams, R. H., New Hope.
Williams, W. H., Franklin.
Young, I. C., Lowes.

LOUISIANA

Bahn, C. A., New Orleans.
Brahic, P. E., Moreauville.
Brosnan, D. S., New Orleans.
Brown, F. T., New Orleans.
Engelbach, Theodore, Grand Isle.
Gillaspie, W. A., New Orleans.
Gouaux, F. T., Lockport.
Kahle, P. J., New Orleans.
Lowe, V. F., New Orleans.
Murdock, L. A., St. Joseph.
Quirk, W. A., Evergreen.
Sheppard, J. K., New Orleans.
Tusson, Walter, New Orleans.

MAINE

Files, E. W., Portland.
Gage, I. B., Warren.
Head, O. B., New Sharon.
Nash, A. W., Jefferson.
Poore, L. H., Webb's Mills.
Wheeler, L. H., South Brewer.
York, A. I., Wilton.

MARYLAND

Bird, J. W., Sandy Spring.
Byrne, B. J., Ellicott City.
Conradi, F. A., Baltimore.
Griffith, W. A., Upper Marlboro.
Kalbaugh, A. B., Westernport.
King, I. N., Barstow.
McMillan, S. M., Riverdale.
Moseley, Jr., W. E., Baltimore.
O Mara, J. T., Baltimore.
Vest, W. E., Baltimore.
Willey, W. T., Baltimore.

MASSACHUSETTS

Atchison, C. M., New Bedford.
Boos, W. F., Jamaica Plain.
Collins, O. W., So. Framingham.
Dubois, E. C., Springfield.
Flagg, H. H., Charlestown.
Holmes, A. B., Kingston.
Lane, C. G., Woburn.
Losses, Max, Salem.
Mellus, Edward, West Newton.
Mann, W. O., Boston.
Miller, G. F., Boston.
Mixter, W. J., Boston.
Morrison, R. F., Holyoke.
Mysel, H. A., Haverhill.
Perry, H. B., Northampton.
Quest, J. F., Adams.
Sanborn, Byron, Topsfield.
Sandler, Samuel, Fall River.
Senesac, A. N., New Bedford.
Siskind, A. L., Lawrence.
Spooner, L. H., Boston.
Swift, M. B., Fall River.
Wilcox, H. H., Springfield.

MICHIGAN

Barnard, J. H., Tustin.
Bland, J. P., Adrian.
Campbell, W. T., Brown City.
Hoag, R. B., Wayne.
Howlett, E. V., Pontiac.
Huntley, V. F., Manton.
Kaven, G. H., Unionville.
Kremer, John, Grand Rapids.

Martin, E. L., Maple Rapids.
McManus, E. A., Sherman.
Seager, G. B. M., Adrian.
Staines, Carrie S., Fenwick.
Townsend, Wesley, Salt Ste Marie.
Vollmer, Maud J., Battle Creek.

MINNESOTA

Aune, Martin, Minneapolis.
Hart, M. J., LeRoy.
Hoegh, Knut, Minneapolis.
Knight, R. R., Minneapolis.
Oberg, Emanuel, Minneapolis.
Roadman, I. M., Onamia.
Shulean, Nellie S., Cambridge.

MISSISSIPPI

Criss, R. J., Youngs.
Durley, B. H., Aberdeen.
Furr, J. M., Aberdeen.
Givhan, J. E., Pontotoc.
Harris, J. A., Webb.
Hood, B. S., Bond.
LeBaron, Chas., Gulfport.
McNeill, J. H., Olive Branch.
McRee, F. V., Brookhaven.
Mohler, D. G., Gulfport.
Murry, W. M., Dumas.
Perry, J. A., Shuqualak.
Powell, H. E., Ocean Springs.
Rowan, W. H., Wiggins.
Turner, R. L., Meridian.
Whitaker, Jos., Natchez.

MISSOURI

Ameiss, F. C., St. Louis.
Bates, S. L., Adrian.
Bleyer, A. S., St. Louis.
Boislinere, L. C., St. Louis.
Bosse, E. H., St. Louis.
Bostick, Will, St. Louis.
Drescher, F. B., St. Louis.
Dunigan, J. P., Sullivan.
Engelbrecht, John, Starryhill.
Engelmann, O. R., St. Louis.
Faris, J. C., Caruthersville.
Frazer, H. S., St. Louis.
Gentle, Doke, New Franklin.
Graves, Spencer, St. Louis.
Hagerty, M. E., St. Louis.
Meinhard, J., St. Louis.
Miller, H. E., St. Louis.
Miller, T. D., Aurora.
North, E. P., St. Louis.
Schaub, C. W., St. Louis.
Schuchat, W. L., St. Louis.
Songer, H. E., Jamesport.
Stephenson, J. T., Tina.
Sturgis, W. E., Kennett.
Tainter, P. R., Calloo.
Thompson, A. W., Galt.
Thompson, R. L., St. Louis.
Timberman, J. H., Marston.
Ude, Waldemar, St. Louis.
Vores, C. P., Unionville.
Vosburgh, C. A., St. Louis.
Whiteside, E. E., River Aux Vases.
Young, A. O., St. Louis.
Youngman, J. A., St. Louis.

MONTANA

Cram, R. L., Park City.

NEBRASKA

Bleick, L. C., Bloomfield.
Evans, E. B., Cody.
Langrall, C. D. D. M. M. S., Minatare.
Tanter, R. C., Dorchester.
Sher, Philip, Omaha.
Smith, J. G., Wahoo.
Slagle, C. E., Alliance.
Snell, C., Tecumseh.

NEVADA

Belanger, G. L., Ft. Dermitt.
Heppner, A. H., Reno.

NEW HAMPSHIRE

Rogers, F. N., Manchester.
Varney, A. H., Newfields.

NEW JERSEY

Anthony, W. H., Plainfield.
Bailey, F. R., Elizabeth.
Bennett, R. S., Asbury Park.
Foulks, Sara E., Trenton.
Gelbach, R. W., Hoboken.
Hunter, James, Jr., Westville.
MacDonald, Jr., Jos., East Orange.
McNamara, T. C., Hoboken.
Neal, C. B., Millville.
Plume, C. A., New Brunswick.
Randolph, J. M., Rahway.
Read, C. H., Trenton.
Stack, J. F. X., Hoboken.
Wadler, F. C., Newark.
Wilkinson, G. H., Moorestown.

NEW MEXICO

Davis, Augustus, Texico.
Dillon, F. A., Laguna.
Slack, J. C., Clayton.
Worley, Preston, Clovis.

NEW YORK

Asch, J. J., New York City.
Brill, A. A., New York City.
Cooley, H. E., Angelica.
Cross, J. B., Buffalo.
Crowe, J. M., Watertown.
Cudmore, J. H., New York City.
Dederer, Carleton, New York City.
Gibson, E. D., Buffalo.
Hancock, E. G., New York City.
McLaren, W. A., Brooklyn.
Moore, S. A., Buffalo.
Pfetschinger, F., New York City.
Rossano, A. T., New York City.
Spann, J. H., New York City.
Spence, H. D. L., Utica.
Swift, H. F., New York City.
Taylor, E. C., Central Islip.
Warren, John, New York City.
Weber, W. E., New York City.
Weil, Henry, New York City.
Wise, L. D., New York City.

NORTH CAROLINA

McBrayer, L. B., Asheville.
Nicholson, J. L., Richlands.
Reed, C. E., Banner Elk.
Sloop, E. H., Plumtree.

NORTH DAKOTA

Arnold, E. W., Medford.
Wilder, K. W., Wyndmere.

OHIO

Breyfogle, E. W., Chillicothe.
Dudley, Harlan, Macedonia.
Harper, W. H., Columbus.
Hobson, A. B., Salem.
Johnston, C. E., Sidney.
Kuhn, E. T., Columbus.
Lawrence, E. J., Nottingham.
Weaver, Elizabeth M., Akron.

OKLAHOMA

Chapman, T. S., McAlester.
Evans, W. G., Stuart.
Fulkerson, W. C., Marshall.
Gay, J. P., McAlester.
Graydon, A. S., Idobel.
Griffith, Alfred, McAlester.
Holbrook, R. W., Perkins.
Long, T. J., Atoka.
Miller, D. W., Blackwell.
Mills, F. A., Foss.
Moore, M. O., Braden.
Risser, A. S., Blackwell.
Smith, I. T., Fay.
Watkins, J. C., Hallett.

PENNSYLVANIA

Brown, L. M., Woodville.
Chase, T. L., Philadelphia.
Dunn, H. A., Erie.
Gilland, J. C., Greencastle.
Hall, A. B., Philadelphia.
Reisert, Wm., Philadelphia.
Simmonds, H. T., Shamokin.
Washabaugh, W. B., Erie.
Widdowson, F. R., Clymer.
Woods, R. F., Philadelphia.

SOUTH CAROLINA

Edwards, J. E., Spartanburg.
Hill, J. C., Abbeville.
Holman, F. K., Sumter.
ilderton, Wm., Florence.
Kershaw, T. G., Walterboro.
Walker, C. M., Westminster.

SOUTH DAKOTA

Moore, L. S., Terraville.

TENNESSEE

Elam, K. P., Tate Springs.
Gallaher, R. L., Caryville.
Ruble, W. G., Morristown.
Shields, J. A. P., Norma.

TEXAS

Boothe, S. P., Cheapside.
Hanna, J. J., Quanah.
Henschen, G. E., Georgetown.
Herzog, Sofie, Brazonia.
Mathews, W. J., Naples.
McCloud, B. L., Bryson.
Smith, A. A., Goolesboro.
Smith, W. H., D'Hanis.
Steck, O. E., Bellville.

UTAH

Ries, Anna F., Ogden.
Robinson, A. A., Ogden.

VERMONT

Adams, B. D., Burlington.
Hanson, L. W., Montpelier.

VIRGINIA

Burnham, M. P., Harrisonburg.
Sycle, M. C., Richmond.

WASHINGTON

Dietz, Wm., Spangle.
Mertz, E. F., Concrete.

WEST VIRGINIA

Craeraft, L. K., Elm Grove.

WISCONSIN

Christensen, F. C., Racine.
Comee, W. C., Cecil.
Cunningham, R. B., Cadott.
Freeman, D. R., Colby.
Haigh, Edith S., Madison.
Hinrichsen, J. A., Larsen.
Hopkins, J. W., Madison.
Knutson, Oscar, Prairie Farm.
Ludden, H. D., Mineral Point.
Provost, A. J., Oshkosh.
Shaykett, F. E., Brandon.

WYOMING

Magahy, C. A., Lusk.
Smith, C. K., Fort Washakie.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

DISTRICT OF COLUMBIA: Washington, April 12-15. Sec., Dr. George C. Ober, 125 B St., S. E.

ILLINOIS: Chicago, April 14-16. Sec., Dr. J. A. Egan, Springfield.

NEW MEXICO: Santa Fe, April 11-12. Sec., Dr. J. A. Massie.

OKLAHOMA: Ione Hotel, Guthrie, April 12. Sec., Dr. Frank P. Davis, Enid.

WEST VIRGINIA: Wheeling, April 12-14. Sec., Dr. H. A. Barbee, Point Pleasant.

New Buildings at McGill University

The new buildings to be occupied by the Medical Faculty of McGill University which are being erected to replace those destroyed by fire in 1907 are rapidly nearing completion. They will cost $750,000 and are located near the old medical buildings on a site which was given to the university by Lord Strathcona, the chancellor of McGill University, who has contributed more than half of the cost of the new buildings. An interesting program has been arranged for the ceremonies with which the buildings are to be inaugurated, June 6 and 7, at which the Governor General of Canada will officiate.

It has been determined to mark the occupation of the new buildings by a reunion of as many as possible of the physicians who have graduated from McGill. Communications from representatives of each of the 45 classes indicate there will be a unique gathering of McGill graduates from all parts of the world in Montreal, June 6 and 7.

The Public Service

Medical Department of the Army

Changes for the week ended April 2, 1910:

Banister, William B., lieut. col., will, in addition to his present duties at Fort Snelling, take charge of the office of chief surgeon, St. Paul, Minn., making not to exceed three trips per week to St. Paul and return to Fort Snelling, Minn.

Glennan, James D., lieut. col.; Ashburn, Percy M., major, appointed members of an Army retiring board to meet at San Francisco.

Birmingham, H. P., lieut. col.; McCaw, Walter D., lieut. col.; Darnall, Carl R., major, appointed members of a board to meet at the Army Medical Museum Bldg., this city, for the physical examination of candidates for appointment and Second Lieutenants.

Mills, R. H., dental surgeon, reported for temporary duty, Plattsburg Barracks, N. Y.

Whitcomb, C. C., capt., relieved from duty at Fort Wingate, N. Mex., and ordered to duty at Medical Supply Depot, New York City.

Whitmore, Eugene R., major, the detail of, on temporary duty in the Bureau of Science, Department of the Interior, P. I., is further extended to Aug. 15, 1910.

Casaday, George H., dental surgeon, returned to Presidio of Monterey, Cal., from leave of absence.

Flynn, Thomas J., 1st lieut., M. R. C., ordered to proceed from Fort Ethan Allen, Vt., to Madison Barracks, N. Y., for temporary duty.

Scott, Minot E., dental surgeon, ordered to proceed from Vancouver Barracks, Wash., to Fort Stevens, Ore., and Fort Columbia, Wash., for temporary duty.

Johnson, Charles W., 1st lieut., M. R. C., honorably discharged from the service of the United States.

Ashburn, James K., 1st lieut., M. R. C., honorably discharged from the service of the United States, to take effect April 4, 1910.

Rutherford, Henry H., major; Jones, Percy L., capt.; Metcalfe, Raymond F., capt.; Farrow, Edgar J., 1st lieut., M. R. C.; Tetrault, Charles A., 1st lieut., M. R. C., relieved from duty in Philippines Division, and will proceed on transport to sail from Manila, P. I., July 15, to San Francisco, and on arrival to report by telegraph to the Adjutant General of the Army, for further orders.

Bierbower, Henry C., 1st lieut., M. R. C., granted 3 months' leave on arrival at station in the United States.

Maynard, Edward B., 1st lieut., M. R. C., recently appointed, ordered to Fort Snelling, Minn., for duty.

Ingalls, R. E., dental surgeon, reported for duty at Fort Douglas, Utah.

Hull, Alva R., 1st lieut., M. R. C., relieved from duty at Fort Sam Houston, Texas, to take effect about April 12, 1910, and will then proceed to his home. Lieutenant Hull is relieved from active duty in the Medical Reserve Corps, on his arrival at his home.

Holland, Josiah H., 1st lieut., M. R. C., relieved from duty at Fort Barrancas, Fla., and ordered to Fort Douglas, Utah, for duty.

McCown, Thomas B., 1st lieut., M. R. C., relieved from duty at Fort Douglas, Utah, and ordered to Fort Barrancas, Fla., for duty.

Coffey, A. McD., 1st lieut., M. R. C., ordered to accompany Co. I, Signal Corps, from Sam Houston, Texas, to San Francisco, and on completion of this duty to proceed to his home.

Smith, Allen M., major, ordered to accompany the 9th Infantry from Sam Houston, Texas, to San Francisco, and on completion of this duty to return to his home.

McAndrew, P. H., major, granted 5 days' leave of absence.

McDonald, R. C., 1st lieut., M. R. C., recently appointed, is ordered to Fort Sam Houston, Texas, for duty.

Medical Corps of the Navy

Changes ordered March 21, 1910:

Diehl, O., med. inspector, detached duty as fleet surgeon, Asiatic Fleet, on *Charleston*, and continue other duties.

Shipp, E. M., surgeon, detached duty Naval Hospital, Philadelphia; to duty Navy Recruiting Station, New York.

Wilson, G. B., surgeon, detached duty *Wabash*, Navy Yard, Boston; to duty as fleet surgeon, U. S. Asiatic Fleet, on *New York*.

Ryder, C. E., P. A. surgeon, detached duty New York Nautical Training Ship *Newport*, to Naval Medical School, Washington, D. C., for instruction.

Dunn, H. A., P. A. surgeon, detached duty Naval Proving Ground, Indian Head, Md.; to Naval Medical School, Washington, D. C., for instruction.

Payne, J. H., P. A. surgeon, detached duty Naval Hospital, New York; to Naval Medical School, Washington, D. C., for instruction.

Seaman, W., P. A. surgeon, detached duty Naval Recruiting Station, New York; to Naval Medical School, Washington, D. C., for instruction.

Faunteroy, A. M., P. A. surgeon, detached duty *New York* and *Indiana*; to duty Naval Hospital, Naval Home, Philadelphia.

Stepp, J., P. A. surgeon, detached duty *Franklin*, Navy Yard, Norfolk, Va.; to duty Naval Medical School, Washington, D. C., for instruction.

Tolfree, H. M., P. A. surgeon, detached duty Naval Magazine, Iona Island, N. Y.; to duty Naval Medical School, Washington, D. C., for instruction.

Cather, D. C., P. A. surgeon, detached duty Navy Recruiting Station, Kansas City, Mo.; to home and granted leave 1 month.

Warner, R. A., P. A. surgeon, detached duty Naval Hospital, Norfolk, Va.; to duty New York Nautical Training Ship *Newport*.

Hayden, R., asst.-surgeon, to duty Naval Proving Ground, Indian Head, Md.

Kerr, W. M., asst.-surgeon, detached duty Naval Training Station, Newport, R. I.; to duty Naval Station, Guam, M. I.

Lawrence, H. F., asst.-surgeon, detached duty Naval Station, Tutuila, Samoa; to home and wait orders.

Valz, E. V., asst.-surgeon, detached duty *Mississippi*; to examinations for promotion, Washington, D. C., and on completion wait orders.

Stibbens, F. H., asst.-surgeon, detached duty *Pennsylvania*; to examination for promotion, Washington, D. C., and on completion wait orders.

Rhoades, G. C., asst.-surgeon, detached duty *Scorpion*; to home and wait orders.

The following are detached from duty at Naval Medical School, Washington, D. C., and ordered as follows:

Connor, W. H., acting asst.-surgeon, to duty Naval Station, Tutuila, Samoa.

Camerer, C. B., acting asst.-surgeon, to duty Naval Hospital, Norfolk, Va.

Riddick, W. J., acting asst.-surgeon, to duty Naval Medical School Hospital, Washington, D. C.

Phillips, E. W., acting asst.-surgeon, to duty Naval Hospital, New York.

Thompson, F. W., acting asst.-surgeon, to duty Navy Recruiting Station, Kansas City, Mo.

McMullin, J. J. A., acting asst.-surgeon, to duty Naval Magazine, Iona Island, N. Y.

French, G. R. W., acting asst.-surgeon, to duty Naval Hospital, Mare Island, Cal.

Irvine, W. L., acting asst.-surgeon, to duty Naval Training Station, Narragansett Bay, R. I.

Davidson, A. B., acting asst.-surgeon, to duty Naval Hospital, Mare Island, Cal.

Jenkins, H. E., acting asst.-surgeon, to duty *Franklin*, Navy Yard, Norfolk, Va.

Robbins, I. W., acting asst.-surgeon, to duty *Pennsylvania*.

Walton, D. C., acting asst.-surgeon, to duty *Scorpion*.

Thomas, G. E., acting asst.-surgeon, to duty *Wabash*, Navy Yard, Boston, Mass.

Bass, J. A., acting asst.-surgeon, to duty *New York*.

Robertson, G. E., acting asst.-surgeon, to duty *Mississippi*.

Changes for the week ended March 26, 1910:

Von Wedekind, L. L., surgeon, detached from the Naval Recruiting Station, Chicago, and ordered to command Naval Hospital, Annapolis, Md.

Grieve, C. C., P. A. surgeon, detached from the Naval Hospital, Norfolk, Va., and ordered to the Naval Recruiting Station, Chicago.

Kuder, W. S., P. A. surgeon, resignation accepted, to take effect April 1, 1910.

Whitmore, G. B., asst.-surgeon, detached from the *Wisconsin* and ordered to duty in connection with fitting out the *Delaware*, and to duty on board that vessel when placed in commission.

Dodge, A. H., asst.-surgeon, detached from the Naval Hospital, Las Animas, Colo., and ordered to the *California*.

Bloerdorn, W. A., acting asst.-surgeon, detached from the Naval Medical School, Washington, D. C., and ordered to the Naval Hospital, Las Animas, Colo.

Hart, S. D., acting asst.-surgeon, detached from the Naval Medical School, Washington, D. C., and ordered to the Asiatic Station.

Cecil, A. B., acting asst.-surgeon, detached from the Naval Medical School, Washington, D. C., and ordered to the *Wisconsin*.

Public Health and Marine-Hospital Service

Changes for the week ended March 30, 1910:

Mead, F. W., surgeon, directed to proceed to Tampa and Port Tampa City, Fla., on special temporary duty.

Carter, H. R., surgeon, leave of absence for 1 month from March 11, 1910, on account of sickness, amended to read 9 days from March 11, 1910, on account of sickness.

Wasdin, Eugene, surgeon, granted 2 months' leave of absence from March 22, 1910.

White, J. H., surgeon, granted 14 days' leave of absence from April 1, 1910.

Lavinder, C. H., P. A. surgeon, granted 4 days' leave of absence en route to Germany.

Lumsden, L. L., P. A. surgeon, directed to proceed to Omaha, Neb., on special temporary duty.

Anderson, John F., P. A. surgeon, directed to proceed to Charlottsville, Va., on special temporary duty.

Fricks, L. D., P. A. surgeon, relieved from duty at Fort Stanton, N. Mex., and directed to proceed to Mobile Quarantine Station, Ala., and assume command.

Korn, W. A., P. A. surgeon, on being relieved by Passed Assistant Surgeon Charles W. Vogel, directed to proceed to Stapleton, N. Y., and report to the medical officer in command for duty and assignment to quarters.

Vogel, Charles W., P. A. surgeon, relieved from duty at Stapleton, N. Y., and directed to proceed to Reedy Island Quarantine Station, Del., and assume command.

de Valin, Hugh, P. A. surgeon, relieved from command of Mobile Quarantine Station, Ala., and from temporary duty at the Hygienic Laboratory, and directed to proceed to Havana, Cuba, for duty in the office of the Consul-General.

Hasseltine, H. E., asst.-surgeon, relieved from duty at Buffalo, N. Y., and directed to proceed to Seattle, Wash., and report to the commanding officer Revenue-Cutter *Rush* for duty.

Leake, James P., asst.-surgeon, granted 4 days' leave of absence from March 18, 1910, on account of sickness.

Knight, Carlisle P., asst.-surgeon, directed to proceed to Buffalo, N. Y., and report to the medical officer in command for duty.

Flinn, Thomas, W. P., acting asst.-surgeon, granted 20 days' leave of absence from April 1, 1910.

Hamilton, H. J., acting asst.-surgeon, granted 2 days' leave of absence from March 23, 1910.

Knight, Carlisle P., commissioned Assistant-Surgeon March 16, 1910.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE WASSERMANN REACTION

To the Editor:—Please give me a complete list of articles on the Wassermann reaction. R. A. WESTON, M.D., Des Moines, Iowa.

ANSWER.—As hundreds of articles have appeared on this subject, it is impossible to give a complete list here. Practically all these articles were listed, as they appeared, in THE JOURNAL'S department of Current Medical Literature, and in the Index to Subjects which is published in THE JOURNAL every six months, in the last number of the volume. The following are some of the more valuable and recent ones taken from the Index. Most of those published in THE JOURNAL have full bibliographies in the footnotes:

Schaudinn and Hoffman: Arb. a. d. k. Gsndhtsamte, 1905, xxii, 835.

Wassermann: *Berl. klin. Wchnschr.*, 1907, xliv, 12.

Nonne: Clinical Diagnosis of the Syphilogenous Diseases of the Nervous System, THE JOURNAL, July 24, 1909, p. 289.

Sachs: The Wassermann Reaction in Relation to Diseases of the Nervous System, THE JOURNAL, Sept. 18, 1909, p. 929.

Noguchi: Serodiagnosis of Syphilis, THE JOURNAL, Sept. 18, 1909, p. 935.

Castelli: The Wassermann Reaction, THE JOURNAL, Sept. 18, 1909, p. 936.

Noguchi: A Rational and Simple System of Serodiagnosis of Syphilis, THE JOURNAL, Nov. 6, 1909, p. 1532.

Wieder and L'Engle: Studies of the Precipitin Tests for Syphilis, THE JOURNAL, Nov. 6, 1909, p. 1535.

Litterer: Serodiagnosis of Syphilis, THE JOURNAL, Nov. 6, 1909, p. 1537.

Harris and Corbus: Clinical Value of the Spirochæta Pallida in Diagnosis and Treatment of Syphilis, THE JOURNAL, Dec. 5, 1908, p. 1928.

Neilsen: *Monatsh. f. pract. Dermat.*, xlviii, No. 2, p. 5.

Fleischmann and Butler: Serum Diagnosis of Syphilis, THE JOURNAL, Sept. 14, 1907, p. 934.

Plaut, Fornet and Schereschewsky: Serodiagnosis of Syphilis, Tabes and paralysis, *München. med. Wchnschr.*, July 23, 1907; abstr. in THE JOURNAL, Sept. 28, 1907, p. 1154.

Citron: Serodiagnosis of Syphilis, *Berl. klin. Wchnschr.*, Oct. 28, 1907; abstr. in THE JOURNAL, Dec. 7, 1907, p. 1962.

Butler: Serum Diagnosis of Syphilis, *New York Med. Jour.*, Nov. 30, 1907; abstr. in THE JOURNAL, Dec. 14, 1907, p. 2037.

Harris and Corbus: Parasitology of Syphilis, THE JOURNAL, Sept. 4, 1909, p. 757.

Glaser and Wolfsohn: Serodiagnosis of Syphilis Controlled by Autopsy Findings, *Med. Klin.*, Nov. 14, 1909.

Stopczanski: Serodiagnosis of Syphilis, *Wien klin. Wchnschr.*, Nov. 25, 1909; abstr. in THE JOURNAL, Jan. 8, 1910, p. 170.

Chirivino: Diagnosis of Syphilis by Staining Reaction, *Riforma Med.*, Feb. 14, 1910; abstr. in THE JOURNAL, March 26, 1910, p. 1098.

Ehrmann and Stern: Wassermann Reaction in Syphilis, *Berl. klin. Wchnschr.*, Feb. 7, 1910.

Kiralyfi: Connection Between Wassermann Reaction and Antisyphilitic Treatment, *Wien klin. Wchnschr.*, Feb. 3, 1910.

Butler: The Serum and Precipitate Reactions for Syphil's and their Clinical Value, THE JOURNAL, April 2, 1910, p. 1116.

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of State of, Mobile, April 19-22.
Amer. Assn. of Genito-Urinary Surgeons, Washington, D. C., May 3-4.
Amer. Assn. of Pathologists and Bacteriologists, Washington, May 3-5.
American Climatological Association, Washington, D. C., May 3-5.
American Dermatological Association, Washington, D. C., May 3-5.
American Gynecological Society, Washington, D. C., May 3-5.
American Laryngological Association, Washington, D. C., May 3-5.
Am. Laryn., Rhin. and Otol. Society, Washington, D. C., April 28-30.
Amer. Medico-Psychological Association, Washington, D. C., May 3-5.
American Neurological Association, Washington, D. C., May 3-5.
American Ophthalmological Society, Washington, D. C., May 3-4.
American Orthopedic Association, Washington, D. C., May 3-5.
American Otological Society, Washington, D. C., May 3-5.
American Pediatric Society, Washington, D. C., May 3-5.
American Surgical Association, Washington, D. C., May 3-5.
American Therapeutic Society, Washington, D. C., May 5-7.
Arizona, Medical Association of, Phoenix, April 20-21.
Association of American Physicians, Washington, D. C., May 3-5.
California, Medical Society of State of, Sacramento, April 19-21.
Conf. State and Prov. Bds. of Health, Washington, April 28-29.
Congress of Amer. Phys. and Surg., Washington, D. C., May 3-5.
Connecticut State Medical Society, New Haven, May 25-26.
District of Columbia, Medical Association of, Washington, April 26.
Georgia, Medical Association of, Athens, April 20-23.
Illinois State Medical Society, Danville, May 17-19.
Iowa State Medical Society, Des Moines, May 20-21.
Kansas Medical Society, Topeka, May 4-6.
Louisiana State Medical Society, New Orleans, May 3-5.
Maryland, Med. and Chirurgical Faculty of, Baltimore, April 26-28.
Mississippi State Medical Association, Oxford, April 12.
Missouri State Medical Association, Hannibal, May 3-5.
Montana State Medical Association, Hunter's Hot Springs, May 11.
Nebraska State Medical Association, Lincoln, May 10-12.
New Hampshire Medical Society, Concord, May 12-13.
North Dakota State Medical Association, Grand Forks, May 10-11.
Ohio State Medical Association, Toledo, May 11-13.
Oklahoma State Medical Association, Tulsa, May 10-12.
South Carolina Medical Association, Laurens, April 19-21.
Tennessee State Medical Association, Memphis, April 12-14.
Texas, State Medical Association of, Dallas, May 10-12.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

Twentieth Annual Meeting, held at Baltimore, March 21-22, 1910
(Continued from page 1158)

Report of Judicial Council

In connection with the several reports recently made on the standing of medical colleges, the council recommended that it be given authority to order an investigation of the colleges in membership that were reported on adversely by other organizations, and to investigate any other colleges in membership that may be subject to like criticism; further, that these investigations be made by two persons selected by the council, that the expense of such investigation be borne by the college inspected, and that other educational bodies interested in examining colleges be invited to participate in such inspection and examination. The council recommended the acceptance of the applications of the Tulane University Medical Department, and Harvard University Medical Department. Application for membership was made by the Medical Departments of the University of Vermont and Syracuse University, but inasmuch as these applications were received during the session, too late for inspection of these colleges, no action could be taken.

Report of Committee on Medical Education

The committee endorsed the present system of matriculation record blanks and urged a faithful compliance with the present entrance standards on the part of all the colleges in membership. The committee also recommended that the present entrance standard be increased as soon as practicable, and urged that the state medical examining boards and the various state educational bodies make an earnest effort to raise the standard in their respective states, so that these will be at least the equal of the association standards. The committee emphasized the importance of recognition of the standard public high school and asked that the colleges in membership lend their influence and support to a high school educational basis. The combined baccalaureate and medical course now given by many universities was endorsed. The committee also recommended that there be submitted at the next annual meeting a curriculum for the five-year medical course. The concentration plan of teaching was recommended as a correct pedagogic principle, and the association was urged to place itself on record as favoring this plan and to instruct the committee to arrange an outline for a curriculum based on the concentration plan of teaching.

Report of Committee on Medical Research

The committee called attention to the rules recommended by a committee of the American Medical Association, and urged that this association concur in the recommendations of the American Medical Association committee, and that these rules be posted in all laboratories where animal experimentation is carried on and also that individuals performing animal experimentation should comply not only with the letter but the spirit of these rules.

Report of Committee on Equipment

The Committee on Equipment did not amend the report made in 1909, but urged that the colleges adhere as closely as possible to the equipment standard prepared by the secretary and adopted by the association in 1908.

Report of Committee on Curriculum

This committee recommended a four-thousand-hour schedule without any allowable diminution; the number of scheduled hours to represent the actual number of hours scheduled for each student. While the distribution of time between didactic and laboratory instruction in the laboratory subjects was recommended, the committee did not regard it as possible to distribute the time in the clinical subjects among the various kinds of exercises. Such distribution was left to the good judgment of the college authorities, to be arranged to suit their individual conditions. The committee recommended, however, that not more than one-half the time devoted to any subject should be devoted to clinical and didactic work, and that at least one-half of the time should be devoted to section or individual work. The schedule recommended by the committee is based on a course extending over thirty-two weeks, of which thirty weeks shall consist of actual teaching, and two weeks be allotted to examinations. The hours assigned are not to be considered "credit" hours. The committee considered it unwise to regulate courses too much in detail, and submitted the following curriculum for consideration as a constitutional amendment at the next annual meeting:

REPORT OF COMMITTEE OF CURRICULUM, ADOPTED MARCH 22, 1910

	Total Hours.	Lect. Rec. Dem.	Lab. Work.
DIVISION I. ANATOMY—720 HOURS (18 PER CENT.):			
(a) Gross Anatomy (including Applied Anatomy)	510	120	390
(b) Histology and Mic. Anatomy	135	30	105
(c) Embryology	75	30	45
DIVISION II. PHYSIOLOGY AND CHEMISTRY—600 HOURS (15 PER CENT.):			
(a) Inorganic Chemistry	180	60	120
(b) Organic Chemistry	75	30	45
(c) Physiologic Chemistry	105	30	75
(d) Physiology	240	165	75
DIVISION III. PATHOLOGY, BACTERIOLOGY AND HYGIENE—450 HOURS (11.25 PER CENT.):			
(a) Bacteriology	135	30	105
(b) Hygiene and General Diet	45	45	...
(c) Pathology	270	60	210

DIVISION IV. PHARMACOLOGY, MATERIA MEDICA AND THERAPEUTICS—240 Hours (6 Per Cent.):			
(a) Pharmacology	105	40	65
(b) Materia Medica and Pharmacology	80	...	...
(c) Therapeutics	55	...	...
DIVISION V. MEDICINE AND MEDICAL SPECIALTIES—970 Hours (24.25 Per Cent.):			
(a) General Medicine (including Clinical Microscopy)	640	...	...
(b) Pediatrics	150	...	...
(c) Nervous and Mental Diseases	105	...	...
(d) Jurisprudence, Ethics and Economics	30	...	...
(e) Dermatology and Syphilis	45	...	...
DIVISION VI. SURGERY AND SPECIALTIES—720 Hours (18 Per Cent.):			
(a) General Surgery	510	...	...
(b) Orthopedics	45	...	...
(c) Genitourinary Diseases	45	...	...
(d) Eye	60	...	...
(e) Nose, Ear, Throat	60	...	...
DIVISION VII. OBSTETRICS AND GYNECOLOGY—300 Hours (7.5 Per Cent.):			
(a) Obstetrics	195	...	...
(b) Gynecology (including some Abdominal Surgery)	105	...	...

Fifteen of the 640 hours in medicine are designed for the teaching of dietetics as applied to diseased conditions—practical dietetics. Fifteen of the 45 hours allotted to hygiene are to be devoted to the consideration of the more fundamental principles of dietetics. The allowance for pediatrics is intended to include instruction in the exanthemata. The surgery peculiar to children may be given from the chair of pediatrics or from the chair of surgery. Instruction in surgery should be confined to what the general practitioner needs. More special work should be provided for by advanced or postgraduate courses. The time allotted to obstetrics does not include the time spent in the care of confinement cases. The committee recommended that each student should personally manage at least five cases. The relations of gynecology and surgery were considered, but the committee did not attempt the solution of the problem. In case gynecology does not include any abdominal surgery, or very little of it, the committee recommended that the whole or a part of sixty hours should be transferred to surgery. The committee recommended that more attention be paid to the teaching of economics.

Advancement of Medical Education

DR. G. MILTON LINTHICUM, Medical and Chirurgical Faculty of Maryland: The highest ideals of modern medicine are not being striven for in a practical way. The science of eugenics does not receive the attention it deserves. The physician is in a better position to understand the causes and factors which produce departure from the normal than is any other trained scientist. The large medical schools, with equipment and means, associated with large and diverse hospital advantages, must investigate moot questions and the application of newer scientific theories in the treatment of disease. Progress and evolution in medicine must be met by adequate provision by teaching institutions. The segregated, independent, and unendowed institutions cannot meet the conditions which are essential. Medical training has grown more expensive with a correspondingly diminishing income from students, and to meet expenses money must be derived from other sources. The lengthening of the medical course has, in my opinion, reached the point beyond which it is unsafe to go; it is contrary to the economics of human life to lengthen the time for medical training beyond four years. I can see no reason why the vacation period should not be shortened and thus the time of instruction increased in each of the four years. I do not regard the college degree as an essential requirement for admission, as it may carry with it only literary training, which in itself is doubtless of value and yet is not commensurate with the value of time spent in obtaining it. Teachers find that the high-school graduate grasps details and observes with more precision than the student who has spent several years in a purely literary pursuit. If the professional course must be lengthened, it should be backward into the college course. The teaching of anatomy, biology, chemistry, physiology and botany should be a part of the college preparatory course, and should be dealt with in the medical school only in relation to research and clinical application. This would relieve the curriculum without lengthening the medical course. The other alternative is to teach such subjects in the first year of the medical course, increasing the course to five years.

Concentration Plan of Teaching

DR. HENRY A. CHRISTIAN, Harvard Medical School: Concentration is employed in two portions of the medical curriculum at Harvard; each differs somewhat from the other and concerns divergent subjects. The first group includes the subjects of the first year and a half; anatomy, histology, embryology, physiology, biologic chemistry, bacteriology and pathology (including neuropathology and surgical pathology). These subjects are so arranged that the student studies only two of them in a given period of time. The student occupies his forenoons with one subject and his afternoons with another, with the exception of one month of the first year, in which the entire day is devoted to anatomy, and two months of the second year in which the entire day is devoted to pathology. Each group of two subjects is completed and the examination held before new subjects are begun. Anatomy, histology and embryology are taught during the first half of the first year; physiology and biologic chemistry are taught during the second half of the first year; bacteriology and pathology are taught during the first half of the second year. The second portion of the curriculum to which the concentration plan is applied at Harvard includes all the subjects of the fourth year. This work is entirely elective, while all work up to that time is prescribed. Each elective course consists of one month's work, occupying a minimum of 125 hours. Usually but a single subject is studied in a given month and not more than two subjects may be studied at one time. The student elects which plan he will pursue. The concentration plan is not used during the second half of the second year, nor during any part of the third year. That portion of the curriculum is devoted to the preliminary and more general study of medicine, surgery, obstetrics, pharmacology, therapeutics, and the specialties. The concentration plan for the first year and a half has been in operation practically unmodified for ten years, and the fourth year elective system for five years.

For the occasional student this system is manifestly an advantage. The regular student has the opportunity to choose his own instructor, which is an advantage, as the student gets much from the personality of the teacher, and when the teacher is personally agreeable, this is accentuated. Again, it allows the student to balance up his work. The expression of opinion from the teachers is very strongly in favor of the fourth year electives as a general plan. As a result of experience, the Harvard faculty is in favor of the concentration plan throughout, and of the elective plan in the fourth year. A too rigid application of concentration teaching is not believed to be best suited to the medical student of to-day. More modification of the plan in application to anatomy seems desirable than for other subjects, as there is less satisfaction expressed with the present concentration teaching of anatomy than with the other subjects. I regard the concentration plan with favor as a system, but believe it should be modfied slightly to increase its elasticitiy and particularly that in applying the concentration plan of study a course should not end abruptly, but certain correlated exercises should be continued after the main facts of a subject have been acquired by concentration study. The amount of modification made should vary with the different subjects of study, and should be adapted to the local conditions of each institution.

DISCUSSION

DR. F. M. BRIGGS, Tufts College Medical School: The concentration plan has been tried at Tufts, and found very successful. We carry it through the entire second year, teaching pharmacology, materia medica, therapeutics and physiologic chemistry in the second semester of the second year. The fourth year is only partly elective, which we think a much better way. We require clinical medicine and clinical surgery of all third and fourth year students, so that they will have had the experience which every general practitioner should have. The elective subjects are given at the end of the fourth year.

The College Association Standard

MR. ABRAHAM FLEXNER, Carnegie Foundation for Advancement of Teaching: The rules of the association very properly state that the entrance standing shall be the minimum requirement for admission to the medical course. An admission standard is required in order to insure a minimum degree of maturity and fitness prior to the student's beginning his medical education. The medical curriculum is constructed in content and arrangement on the supposition that students who undertake to master it have enjoyed the education in question, and therefore enter the medical school with a preliminary equipment in knowledge and power. The educational question, whatever it may be, must have been received prior to the beginning of the medical course. It is the manifest intention that a four-year high school standard should be upheld by the colleges. At best, it is not altogether satisfactory. A number of the colleges in membership are operating on a standard in advance of the minimum requirement of the association. Unfortunately, colleges that are on a high school basis do not, as a rule, enforce this standard, because they permit admission with conditions amounting to not more than six points. Such a concession is unwise, because the first year in a medical school is an extremely arduous one. Add to this the necessity of removing conditions to the extent of six points, and the result is apparent. Students not infrequently are allowed to remove these conditions some time during the college course. In New York state a uniform four-year high school matriculation basis is assured, but the actual standard of any institution is the minimum basis on which it is willing to admit students. The words "accredited" or "approved" high school differ in meaning in different parts of the country. Ordinarily, it means a high school that has been officially recognized by some competent educational authority. In New England this authority is the New England College Entrance Certificate Board. In the middle west it is the North Central Association of High Schools and Secondary Schools. In the various states the state university authorities determine the high school standing. No high school that is not mentioned in one of these lists is accredited or approved, and members of this association cannot, without violating the constitution, accept the diploma of a high school that is not on one of these lists. In many states the state board of examiners, the state superintendent of public instruction or his deputy, or an examiner selected by the college pass on the entrance credentials in rather a perfunctory manner, with the result that students are admitted in some instances with no more than a two-year high-school education. A teacher connected with a local preparatory school may be the examiner and, if the student is deficient, this teacher will act as his tutor. The weakest showing is made by the certificates from reputable instructors, accepted in lieu of some board examination. The registration offices of every well-conducted academic institution have at hand all the data necessary to pass intelligently on any set of credentials. It seems to me that this association would do well to throw the entire question into the hands of such institutions without prejudice to the interests of any medical school that actually wishes to enforce the standard. In many states, the state university could properly perform this duty; elsewhere, an equally suitable arrangement could be made with an endowed institution. A state that desires to enforce a four-year high-school requirement could specify as satisfying its requirements a certificate of admission to a state university requiring a four-year high-school education, a certificate of admission to any institution that is a member of the Association of American Universities, or an institution on the accepted list of the Carnegie Foundation for the Advancement of Teaching, a certificate of the Regents of the University of the State of New York, or a certificate by the College Entrance Examination Board for fourteen points. Personally, I am persuaded that just now the association would be unwise to raise its standards, although particular institutions may do as they please. They deserve to be encouraged to go ahead. The general situation now needs order, organization, real values more than anything else. There must be secured an actual four-year high-school standard.

(*To be continued*)

Marriages

OVERTON BROOKS, M.D., to Miss Emilgene Wortsman, both of Chicago, recently.

EUGENE S. TALBOT, M.D., Jr., to Miss Della Boardman, both of Chicago, March 29.

DANIEL S. HAGER, M.D., to Miss Mary Nicholas, both of Downers Grove, Ill., March 28.

LEOPOLD KAFFIE, M.D., Natchitoches, La., to Miss Jeannette Weil of Corpus Christi, Texas, March 15.

HALVOR LARSON HARLEY, M.D., Williamstown, N. J., to Miss Alice Robison of Milesburg, Pa., March 28.

WINFIELD H. AMMARELL, M.D., Pittsburg, Pa., to Miss Anna E. Wicklein of Gibraltar, Pa., March 21.

WILLIAM OTTO PAULI, M.D. Cincinnati, Ohio, to Miss Winifred Helen Weeks of Toronto, Ont., March 29.

FREDERICK WILLIAM VALKENAAR, M.D., to Miss Reka L. Hofmeister, both of Chancellor, S. D., March 2.

Deaths

Jonathan Edwards Tefft, M.D. Medical College of Ohio, Cincinnati, 1865; acting assistant surgeon, U. S. Army in 1862, and later assistant surgeon of the First Arkansas Volunteer Cavalry during the Civil War; a member of the American Medical Association; president of the Missouri State Medical Association in 1871; president of the Southwest Missouri Medical Society in 1880, and of the Springfield Society in 1886; a member of the Mississippi Valley Medical Association; a member of the board of education of Springfield from 1871-1874, and president of the board for two years; lecturer on genitourinary surgery in the University of Missouri, Columbia, from 1878-1886; senior surgeon to St. John's Hospital, Springfield, since 1890; division surgeon to the Kansas City, Fort Scott and Memphis Railroad since 1881, and consulting surgeon to the Frisco System since 1890; surgeon to the Children's Home; one of the most widely known practitioners of southwest Missouri; died at his home in Springfield, March 25, from cerebral hemorrhage, aged 73.

Oscar C. DeWolf, M.D. New York Medical College, New York City, 1858; Medical Department of the University of France, Paris, 1860; from 1877-1889, health commissioner of Chicago; of national prominence in sanitary matters; the first commissioner of health to cause warning cards to be placed on houses where contagious disease existed; during whose administration house-to-house vaccination was first thoroughly enforced; assistant surgeon of the First Massachusetts Cavalry and surgeon of the Second Massachusetts Cavalry and the Reserve Brigade during the Civil War; formerly a member of the many learned societies; professor of surgical pathology in the Medical School of the University of Ohio, and later professor of state medicine and public hygiene in the Northwestern University Medical School; died at his home in Chester Center, Mass., March 28, from cerebral hemorrhage, aged 74.

David McComb Devendorf, M.D. College of Physicians and Surgeons, New York City, 1861; formerly a member of the Medical Society of the State of New York; and president of the Herkimer County Medical Society; for several months a surgeon in the U. S. Army General Hospital, Washington, D. C., during the Civil War; at various times, president, health officer, village trustee, and member of the municipal commission of Herkimer, N. Y.; died at the Fort Dalas Hotel, Miami, Fla., March 22, from paralysis, aged 73.

Montgomery Bottom, M.D. Hampden Sydney Medical College, Richmond, Va., 1849; for nearly half a century a practitioner at Breckenridge, Mo.; formerly a member of the American Medical Association; president of Caldwell County Medical Society and Grand River District Medical Society; president of the Breckenridge Board of Education from 1868-1888; a member of the Virginia legislature in 1853; died at his home in Breckenridge, March 20, from nephritis, aged 81.

James Wray Bailey, M.D. Atlanta (Ga.) Medical College, 1860; vice-president of the American Medical Association in 1888; a member of the Medical Association of Georgia; formerly president of the State Board of Medical Examiners and of the Hall County Medical Society; a surgeon in the Confederate Service during the Civil War; for many years vice-president of the State Banking Company, Gainesville; died at his home in that city, March 24, aged 71.

Ella Louisa Dexter, M.D. Woman's Medical College of Pennsylvania, 1881; a member of the Massachusetts Medical Society; the New England Ophthalmological Society; New England Hospital Medical Society; ophthalmologist to the New England Hospital for Women and Children, Boston, and to the Pope Dispensary; died at her home in Chestnut Hill, Boston, February 3, from rheumatic arthritis, aged 52.

Francis W. Patterson, M.D. Medical College of Ohio, Cincinnati, 1859; University of Maryland, Baltimore, 1889; a member of the Medical and Chirurgical Faculty of Maryland; and a surgeon in the Confederate service during the Civil War; for a time United States Inspector of contagious diseases of animals; died at his home in Catonsville, Baltimore, March 22, from senile debility, aged 74.

Alfred Nelson Beach, M.D. Bellevue Hospital Medical College, 1870; of Cooperstown, N. Y.; for several years surgeon on steamships running between San Francisco and China; at one time a member of the general assembly of New York, and for two years police surgeon of New York City; died in Thanksgiving Hospital, Cooperstown, N. Y., March 10, from general breakdown, aged 61.

Henry J. Beyerle, M.D. Philadelphia College of Medicine and Surgery, 1851; in 1862 a member of the Indiana legislature; for 45 years a resident of Goshen, Ind.; for more than 30 years editor and proprietor of the *Goshen Times;* for 4 years a member of the city council and for two terms a member of the school board; died at his home, March 24, from senile debility, aged 86.

James Mitchell Blackford, M.D. Starling Medical College, Columbus, Ohio, 1865; a member of the Ohio State Medical Association; mayor of Martins Ferry, Ohio, in 1906; a member of the local school board for nine years; charter member of the Martins Ferry Hospital Association, and a director of the institution; died at his home, March 26, from senile debility, aged 72.

George M. Bazemore, M.D. University of Nashville, Tenn., 1861; Bellevue Hospital Medical College, 1874; a member of the Tennessee State Medical Association; for many years local surgeon at Cleveland for the Southern Railway; chairman of the Cleveland Board of Health; died at his home, March 24, from heart disease, aged 76.

Jefferson L. Thorpe, M.D. Washington University, St. Louis, 1886; a member of the American Medical Association; local surgeon at Jefferson City for the Missouri Pacific, Missouri, Kansas and Texas, and Chicago and Alton railroads; a member of the Cole County Board of Health; died at his home, March 22, from uremia, aged 47.

Gardner Perry Pond, M.D. University of California, San Francisco, 1893; a specialist on diseases of the eye, ear, nose and throat of San Francisco for several years, and later a resident of Los Angeles county; formerly a member of the American Medical Association; died at his home in Pasadena, March 19, aged 41.

Hector H. Goodman, M.D. University of Maryland, 1881; for three years surgeon to the Baltimore Police Department; and for 25 years medical director of the Baltimore Life Insurance Company; died in the Hebrew Hospital in that city, March 20, from cerebral meningitis, following an operation on the nose, aged 60.

George M. Bell, M.D. University of Michigan, Ann Arbor, 1870; Chicago Medical College, 1871; Bellevue Hospital Medical College, 1875; for more than 40 years a practitioner of Benton Harbor, Mich.; died March 27, at the University Hospital, Chicago, from cancer of the spleen, aged 61.

Henry A. C. Poppenhusen, M.D. University of Pennsylvania, Philadelphia, 1894; formerly city physician of Washington, Mo., and coroner of Franklin county; died at his home in Hermann, March 14, from the effects of carbolic acid, believed to have been taken with suicidal intent, aged 41.

George W. Carroll, M.D. Kentucky School of Medicine, Louisville, 1868; of Smithsonia, Ala.; a member of the Medical Association of the State of Alabama and a Confederate veteran; fell from a train near Barton, Ala., March 26, and died from his injuries a short time later, aged 70.

Roland C. Irving, M.D. Bellevue Hospital Medical College, 1877; a member of the Broome County Medical Society and Binghamton Academy of Medicine; first lieutenant and assistant surgeon, First Infantry, N. G., N. Y.; died at the home of a friend in Binghamton, March 17, aged 50.

Elisha Fenn, M.D. Bellevue Hospital Medical College, 1887; of New York City; a member of the Medical Society of the State of New York; for several years a member of the Seventh Regiment; died in Roosevelt Hospital, New York City, March 26, from pneumonia, aged 57.

Thomas J. Norris, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1874; a member of the American Medical Association, and organizer of the first medical society in Macon county, Mo.; a Confederate veteran; died at his home in Macon, March 23, aged 72.

Albert V. Ellershaw, M.D. Jefferson Medical College, 1891; a member of the Medical Society of the State of Pennsylvania; and formerly a practitioner of Norristown and Bridgeport, Pa.; died at the home of his father in Blackpool, England, recently.

Leslie Teasdale Pease, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1878; a member of the Illinois State Medical Society; a member of the council of Cisco; and a member of the school board for many years; died at his home, March 15, aged 57.

Harry Ellis Clemson, M.D. University of Maryland, Baltimore, 1894; a member of the American Medical Association; medical director of the Silver Cross Home for Epileptics, Port Deposit, Md.; died at his home, March 21, from heart disease, aged 37.

William Wallace Cole, M.D. Jefferson Medical College, 1869; a member of the Medical Society of the State of Pennsylvania; a veteran of the Civil War; assistant city physician of Pittsburg; died at his home, March 25, from heart disease, aged 67.

Samuel Jay Holliday, M.D. Northwestern Medical College, St. Joseph, Mo., 1882; a member of the American Medical Association; formerly of Pollock, Mo.; died at his home in Pennville, Mo., March 2, from lobar pneumonia, aged 53.

Joseph Dawson, M.D. Rush Medical College, 1885; Hahnemann Medical College of the Pacific, San Francisco, 1892; three years surgeon to the State Penitentiary, Joliet, Ill.; died at his home in Wauconda, Ill., March 24, aged 63.

John Blaine Laidley, M.D. Long Island College Hospital, Brooklyn, 1883; of Conway, Mass.; manager of the local interurban railway; died in the Franklin County Hospital, Greenfield, Mass., March 18, from influenza, aged 51.

William Henry Harrison Sharp, M.D. University of Pennsylvania, 1868; Bellevue Hospital Medical College, 1870; a veteran of the Civil War; died at his home in Muhlenberg, Pa., January 6, from diabetes mellitus, aged 69.

David H. Reed (license, years of practice, Ohio, 1896); for fifty-five years a practitioner of North Fairfield, Ohio; for two terms a member of the state legislature; died at his home in that place, March 21, from pneumonia, aged 78.

Welton O'Bannon, M.D. Washington University, St. Louis, 1875; a member of the Missouri State Medical Association; mayor of New Madrid, Mo., for sixteen years; died in St. Louis, March 16, from nephritis, aged 56.

Eli Perry Rainwater, M.D. University of Louisville, 1891; (license, Tenn., examination, 1889); a member of the Tennessee State Medical Association; died at his home in Trion, March 26, from heart disease, aged 55.

Frank Worman Myrick, M.D. College of Physicians and Surgeons, New York City, 1899; a member of the Medical Society of the State of New York; died at his home in Binghamton, March 21, from pneumonia, aged 34.

Edward Sutton, M.D. College of Physicians and Surgeons, New York City, 1888; a member of the Medical Society of New Jersey; died at his home in German Valley, January 5, from cirrhosis of the liver, aged 43.

Walter John Smith, M.D. Yale University, New Haven, 1878; for three years an apothecary in the United States Navy; died at his home in Olneyville, Providence, March 13, from heart disease, aged 53.

George Fame Gaines, M.D. Louisville Medical College, 1877; of Madison, Ind.; died in the Central Indiana Hospital for the Insane, Indianapolis, February 21, from the effects of an overdose of morphin, aged 54.

Perry E. Tayer, M.D. Detroit College of Medicine, 1907; of Adrian, Mich.; a member of the Michigan State Medical Society; died in the Adrian Hospital, March 25, from pneumonia, aged 27.

Joseph Howard Mansur, M.D. Medical School of Maine, Brunswick, 1890; a member of the American Medical Association; died at his home on Orr's Island, Maine, Dec. 27, 1909, aged 44.

James Harvey O'Rear, M.D. Rush Medical College, 1873; at one time a member of the American Medical Association; died at his home in Medford, Okla., March 13, from chronic nephritis, aged 73.

William Moore Riddick, M.D. University of Pennsylvania, Philadelphia, 1856; a member of the Medical Society of the State of North Carolina; died at his home in Hartford, March 16, aged 79.

Thomas Benton Cable, M.D. Miami Medical College, Cincinnati, 1886; a member of the Ohio State Medical Association; died at his home in Pemberton, March 20, from nephritis, aged 53.

William S. Ruthrauff, M.D. University of Wooster, Cleveland, Ohio, 1876; formerly of Mountaindale, Pa.; died at his home in Coffeyville, Kan., March 22, from intestinal disease, aged 61.

William Hillswell Long, Jr., M.D. Jefferson Medical College, 1902; a member of the American Medical Association; died at his home in Philadelphia, March 25, from pneumonia, aged 48.

Alexander C. Sabin, M.D. Bennett Medical College, Chicago, 1882; formerly of Beatrice, Neb.; died at his home in Fairfield, Neb., March 20, from cerebral hemorrhage, aged 71.

Thomas Clay Nelson, M.D. New York Homeopathic Medical College, New York City, 1867; of Augusta, Ga.; a Confederate veteran; died at his home in Augusta, March 21, aged 66.

Susan Kendall Daggett Whitford, M.D. Bennett Medical College, Chicago, 1870; a pioneer woman practitioner of Elgin, Ill.; died at her winter home in Ozona, Fla., March 16, aged 73.

Petrus Nelson, M.D. Hahnemann Medical College, Chicago, 1872; said to have been the first specialist in ophthalmology in Minnesota; died at his home in St. Paul, March 21.

Isaac H. Dix, M.D. Cleveland University of Medicine and Surgery, 1869; of Pratt, Kan.; died at the home of his daughter in Salina, Kan., March 20, from influenza, aged 63.

Ralph Marcus Cole, M.D. Harvard Medical School, 1883; a member of the Massachusetts Medical Society; died at his home in Boston, March 12, from erysipelas, aged 50.

Henry Lisle, M.D. Medical College of Ohio, Cincinnati; who retired from practice in 1874; died at his home in Chetopa, Kan., March 1, from senile debility, aged 89.

Wesley Newell, M.D. McGill University, Montreal, 1884; Trinity Medical College, Toronto, 1887; died at his home in Sarnia, Ont., February 11, from nephritis.

Grafton W. Seaton, M.D. Louisville Medical College, 1870; a veteran of the Civil War; died at his home in Indianapolis, March 25, from heart disease, aged 63.

George Washington Matteson, M.D. University of Buffalo, 1855; died at his home in Middleville, Mich., February 24, from senile debility, aged 88.

Henry D. Rosenberger, M.D. Hahnemann Medical College, Philadelphia, 1875; died at his home in Manheim, Pa., March 17, from cerebral hemorrhage.

Elijah Zimmerlee, M.D. Fort Wayne (Ind.) College of Medicine, 1891; died at his home in Markle, Ind., March 28, from pernicious anemia, aged 67.

Charles Alfred Hudson, M.D. Rush Medical College, Chicago, 1871; died at his home in Kenton, Tenn., March 18, from catarrhal cystitis, aged 64.

Oscar Sneed, M.D. University of Tennessee, Nashville, 1881; died at his home in McKenzie, Tenn., March 21, from disease of the stomach, aged 69.

John A. Meadows, M.D. University of Nashville, Tenn., 1872; died at his home in Bethel, Tenn., March 22, from pneumonia, aged 65.

Herman Mitchell Sorin, M.D. Jefferson Medical College, 1902; died at his home in Camden, N. J., March 22, from pneumonia, aged 30.

Louis Drucklieb, M.D. College of Physicians and Surgeons, New York City, 1886; died at his home in New York City, March 23, aged 54.

James Shadwick Spiller, M.D. University of Maryland, Baltimore, 1870; died at his home in King William, Va., March 12, aged 61.

Thomas J. Poole, M.D. Southern Medical College, Atlanta, Ga., 1898; died at his home in Jakin, Ga., from typhoid fever, aged 38.

James M. Watkins, M.D. Rush Medical College, Chicago, 1864; died at his home in Green Valley, Ill., March 22, aged 79.

Wallace Steward, M.D. Eclectic Medical Institute, Cincinnati, 1872; died at his home in East Clarendon, Vt., March 20.

William R. Pearce, M.D. University of Nashville, Tenn., 1876; died at his home in Como Depot, March 25.

Book Notices

NUTRITION AND DIETETICS. A Manual for Students of Medicine, for Trained Nurses, and for Dietitians in Hospitals and other Institutions. By Winfield S. Hall, M.D., Professor of Physiology, Northwestern University Medical School. Cloth. Price, $2. Pp. 315, with Illustrations. New York: D. Appleton & Co., 1910.

In the present-day tendency to reduce the treatment of disease to rational and more nearly physiologic forms, the question of diet of course assumes an important rôle. Practical works covering the whole field of nutrition and dietetics are not numerous. With this idea in view the present work has been prepared for the use of nurses, students and general practitioners. Though for the most part elementary in character, as it must necessarily be to meet the requirements of its purpose, yet it contains a mass of valuable information for the general practitioner who is sometimes not well posted in the matter of diet for his patients. The arrangement of the book is admirable. Part 1 describes foods and their different classes, their preservation and preparation. Part 2, on the use of foods in the body, without entering into the anatomy of the digestive tract, with which it assumes the reader is acquainted, enters pretty thoroughly into the physiology of digestion, absorption and assimilation of foods, and the getting rid of waste material, stating well the present views on these subjects. Parts 3 and 4 on diet in health and disease go into these matters in a practical way, treating of the measure of fuel values, the relation of fuel values to diet, giving average requirements under different conditions, and constructing daily menus for the child, the adolescent, the athlete, the person of sedentary occupation, etc. The chapters on infant feeding under normal and abnormal conditions by Dr. Brennemann are complete and practical and would add value to any work on pediatrics. The suggestions as to diet in the infectious diseases and diseases of the digestive and other systems are valuable, though the directions for feeding in the febrile stage of typhoid fever are not very definite or complete; but more attention is given to the feeding during convalescence, and full directions are given for feeding tuberculous patients. The book contains two appendices. One gives a classification of diets, the object of which is not apparent, and also a collection of recipes for preparing articles not usually given in the household cook book, which is of greater value. The other appendix, giving experimental tests in the chemistry of foodstuffs and in the experimental chemistry of digestion, is so brief that its value perhaps is not great. The book on the whole, is a valuable practical addition to the subject of nutrition and dietetics and will fill a distinct place in the physician's library.

GULICK HYGIENE SERIES. Book One: GOOD HEALTH. By Frances Gulick Jewett. Cloth. Price, 40 cents. Pp. 172, with illustrations. Book Two: EMERGENCIES. By Charlotte Vetter Gulick. Cloth. Price, 40 cents. Pp. 173, with illustrations. Book Three: TOWN AND CITY. By Frances Gulick Jewett. Cloth. Price, 50 cents. Pp. 271, with illustrations. Book Four: THE BODY AT WORK. By Frances Gulick Jewett. Cloth. Price, 50 cents. Pp. 247, with illustrations. Book Five: CONTROL OF BODY AND MIND. By Frances Gulick Jewett. Cloth. Price, 50 cents. Pp. 269, with illustrations. Boston: Ginn & Co., 1910.

This is a series of five text-books, for elementary school use, on physiology and hygiene of body and mind. The contents of each are indicated by the titles given above. The various volumes are graded in the matter to adapt them to the intelligence of the pupils, beginning with those of the fourth grade. A narrative style is adopted and the matter is presented in such a way as to hold the interest of the pupil. The object kept in view throughout the series is to aid in the establishment of hygienic habits in the young and to inculcate the avoidance of everything inimical to the health of body and mind of the individual. Facts are given on which assertions rest, particularly as they relate to the pupil's own life and environment. Many examples and accounts of the work of physiologists are given in investigating various questions, such as the effects of alcohol, tobacco, work, play, sleep, bad air, etc. The plan of the series is original and the information is obtained from authoritative sources. Examples are given of actual work done in sanitation, etc., in various cities, and the work is freely illustrated. While some criticism might be offered that the volume on "Emergencies" goes a little too far into the medical treatment of too many things, and that the

volume on "Control of the Body and Mind" enters too deeply into the physiology of the brain and nervous system for a work of this class, yet these are minor objections. On the whole the latter subject is very clearly presented and the emphasis laid on the care and cultivation of the special senses and the relation of health to efficiency and success in life is of great value in inspiring loyalty to the laws of health. The teaching of physiology and hygiene according to the plan followed in these books will be far more interesting and of much greater practical value to the pupil than the plan of the ordinary text-book of the schools, which follows a logical rather than a pedagogical plan for the presentation of the subject and attempts to inculcate hygienic habits by dogmatic statements.

PRACTICAL POINTS IN THE USE OF X-RAY AND HIGH-FREQUENCY CURRENTS. By Aspinwall Judd, M.D., Adj. Professor of Surgery of Post-Graduate Medical School and Hospital. Cloth. Pp. 189, with illustrations. Price, $1.50. New York: Rebman Co.

The author states that his work is intended to be an elementary and simple statement of the therapeutic and diagnostic use of *x*-rays and high-frequency currents for the practitioner who has bought the apparatus for these methods and knows nothing about them or electricity. This intention has resulted in a very elementary and confessedly inaccurate statement which, to our mind, is only a fairly successful attempt at making the subject simple. The first part (107 pages), which is taken up with the description of apparatus and the methods of use, is more satisfactory than the second part (approximately 80 pages), which is taken up with the practical applications to therapeutics, and consists of a bald statement of the application of *x*-rays and high-frequency currents in various diseases. On the basis of the knowledge which it contains, the practitioner could use these methods of treatment only in the most superficial and empirical way. The author, we think, has undertaken to simplify the subject too much, with the result that one could get at most only a rule-of-thumb knowledge of the subjects treated from the work. Too many persons are unsuccessfully trying to do the work on that meager basis already.

PULMONARY TUBERCULOSIS: Its Symptomatology; Its Clinical Forms; Its Diagnosis; and Its Prognosis. By M. Piéry, former Chief of the Clinic of the Faculty of Medicine of Lyons. Pp. 836, with 59 illustrations. Price, 9 francs; Paris: Octave Doin & Sons.

This book is one of twenty-five volumes by French physicians which is being brought out under the general heading of "A Library on Tuberculosis." In addition to this volume two others have appeared, one on tuberculosis of the bones and another on tuberculous rheumatism. Two more volumes are in press, namely, one on tuberculous pleurisies and one on tuberculosis of the joints and tuberculosis of the serous and synovial membranes. The entire library is published under the general editorial direction of Drs. A. Chantemesse, A Poncet and F. J. Collet.

Piéry's book is well prepared for the use of medical men and is fairly well up to date. As is so often the case with French books, it displays incomplete knowledge of American medicine, although an attempt has been made to bring it up to date. In this regard it is an improvement on French medical literature and it is not difficult to trace this improvement to the International Congress on Tuberculosis in Washington as most of the American literature with which the author is familiar either appears in the transactions of the congress or has appeared in current literature since the congress.

SURGICAL ANESTHESIA. By H. Bellamy Gardner, M.R.C.S., Anesthetist at St. Mark's Hospital for Fistula, the National Orthopedic Hospital and the Male Lock Hospital. Cloth. Pp. 240, with 35 illustrations. Price, $2.25 net. New York: William Wood & Co., 1909.

This book possesses features common to all of the newer works on anesthesia. Considerable space is devoted to the requirements of dental surgery because the author is convinced that "it is probable that more work of this kind will fall to the practitioner as the serious sequelæ of oral sepsis become more clearly recognized." Nitrous oxid, chloroform, ether, chloroform and ether mixtures, and ethyl chlorid are the only anesthetics considered. The indications for their use, the after-treatment, prevention and treatment of surgical shock, are discussed, but nothing new is presented. The book is well illustrated.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

CONFERENCE OF COUNTY SECRETARIES IN PENNSYLVANIA

By William Rowland Davies, M.D.

Chairman of the Conference of the Secretaries, Medical Society of the State of Pennsylvania

SCRANTON, PA.

Pennsylvania has within the confines of its State Medical Society a body meeting at the same time and place as the state society, but conducting its affairs independently. This is the Conference of the Secretaries, composed of the secretaries of the various county medical societies, which are component parts of the state society.

This organization has been meeting for some years during the progress of the state convention, to enable the secretaries to confer concerning the work that they were expected to perform. This was necessary, as the state secretary was continually hindered in his work by failure of the county secretaries to comply properly and promptly with the needs and requirements of the state secretary's office. Every county secretary was a law unto himself and carried on the business of his office to suit himself, usually to the detriment of the business of the superior organization. The idea of having the secretary's work in each county carried out along uniform lines was long considered by the state secretary, Dr. Cyrus L. Stevens, who suffered most by the dereliction of the county secretaries. On account of frequent changes in the office of county secretary the influence that he exerted lost its value with the advent of each new secretary. The business methods in vogue in the state office could not readily be changed to suit the varying ideas and methods of sixty-six secretaries throughout the state, and so these men were invited to meet with the state secretary at the time of the annual session of the state society and there discuss matters germane to the work of the county and state societies.

The conference now meets yearly and has for one of its attractions a banquet, during and after which the business of the session is transacted. No scientific or technical subjects are considered, for this is the meeting of the field business men of the organization, and they talk business. The ideas and aims of the conference have gradually broadened until it is now originating methods and initiating efforts which are expected to bring results that will be of decided value to the county societies, and consequently to the state and national societies.

The county secretary soon after his election discovers that the success or the failure of his society depends on him. If he is a conscientious man he soon finds himself absorbed in a work the extent of which no one but he can realize; and for the accomplishment of which he will receive no particular reward, except the feeling of having done as well as he could the work that he found waiting for him. If he can find time, once a year, to associate for a few hours with the men who occupy similar positions in other counties throughout the state, he will learn quickly many of the things that the other men are doing that will be of benefit to him, and in return will give of his own experience to the others. It is an admirable scheme and is productive of the best results.

The work planned at the last conference, to be carried on during the current year, is of a decidedly progressive character. In addition to the usual discussion, it was decided that the county secretaries should urge their societies to add to their numbers as many as possible of the non-affiliated physicians of their counties. This is more readily accomplished this year because of the recent issue of the new directory of the American Medical Association, which contains the names of those who are society members, as well as those who are not. This work is now well under way in many sections of the state. Secretaries were also urged to bend every effort toward creating interest in society work by providing attractive educational programs. The result of this recommendation

is shown by the programs received from the various county societies which are full of interest and show a strong tendency toward better educational methods in our societies.

It was also decided that every means possible should be used to present the programs and announcements to members in an attractive form, preferably in the shape of a periodical, issued as often as the affairs of the society would demand. We now have a number of county medical society papers called variously, *Reporter*, *Bulletin*, *Notes*, and *News*, published weekly, monthly or quarterly. These are exchanged between the various counties of the state and have in a short time been of the greatest value imaginable in closing the gaps between the various county organizations. Every little editor of us is pounding away for dear life, endeavoring to have a society above the average, and to edit a sheet that will be at least as good as the other fellow's, and to have in it material that will make his readers "sit up and take notice."

These Pennsylvania county secretaries also resolved that they would be good and prompt business men in the conduct of their affairs and would do all in their power to make the life of the state secretary a little easier. Further realizing that they were the agents of the state society all through the year, they felt that it was rather odd that their services could be dispensed with at the time of the annual session, and so, in their last conference they endorsed a resolution to amend the ordinances and by-laws of the state society so as to make the county secretary a member of the House of Delegates by reason of his office, as the county president is now. This amendment will be voted on at the next session of the society at Pittsburg.

The members of this conference are a forceful set of men, who are determined to boom their local organizations and to secure better organization of the medical profession generally, so as to improve the many conditions that make practice difficult or unpleasant. Marked developments and numerous innovations may be expected from this class of men and their organization.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Eighth Month—Fourth Weekly Meeting

THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION

HISTORY: Reasons for the creation of the Council; the U. S. P., the pharmacist, the practitioner of medicine, the manufacturing pharmacist, the ethical proprietary preparation, the nostrum.

ORGANIZATION OF THE COUNCIL: The personnel of the Council, the professional standing of the members, what they have done in this particular field of work.

OBJECTS: An inquiry into the composition and status of preparations offered to physicians, which are not found in the U. S. P., or standard text-books. The annual, "New and Nonofficial Remedies."

RULES GOVERNING THE ADMISSION OF ARTICLES: Requirements as to formula, purity of ingredients, chemical tests, methods of advertising, claims of manufacturer as to ingredients, therapeutic properties, etc., name of article, etc. Admission of an article not an approval of it. Physician must decide as to therapeutic claims. Classification of articles examined and admitted. Reasons for rejections.

RESULTS OF THE WORK OF THE COUNCIL TO DATE: What may the practitioner do to aid the Council in this work? How may the county society help in this work? The relations existing between the members of this society and the local druggists. The practitioner and the detail man. The testimonial writer.

PUBLICATIONS OF THE A. M. A.: "New and Nonofficial Remedies," "The Pharmacopeia and the Physician," "Physicians' Manual of the U. S. P. and the National Formulary," "The Propaganda for Reform in Proprietary Medicine," various pamphlets.

Monthly Meeting

The Reasons for a More Exact Knowledge of Pharmacology on the Part of the Practitioner of Medicine.

The Difference Between the Ethical Proprietary and the Nostrum.

What the Practitioner and the County Society May Do to Aid the Council on Pharmacy and Chemistry.

Medicolegal

Sufficiency and Construction of Statute Authorizing Board to Revoke Licenses

The Supreme Court of Minnesota says that the complaint of the plaintiff in the case of Wolf vs. State Board of Medical Examiners (123 N. W. R. 1074) set forth that the board had caused a notice to be served on him to appear before it at a time and place stated and show cause why he should not have his license to practice medicine revoked. The ground stated in the notice was that he had been guilty of unprofessional conduct in that at divers times he had entered into business relations with a certain medical institute and had aided and abetted it in carrying on a questionable medical practice. The board, it was alleged, had not the capacity, qualification, or power to properly examine, pass on, or ascertain the facts as to whether the plaintiff had been guilty of immoral, dishonorable, or unprofessional conduct, or to summon, administer oaths, or compel the production of documentary evidence; "the ethics of the medical profession are vague and shadowy; there are a variety of medical schools represented on said board, all differing in their theory of ethics as well as on their medical theories; . . . they do not act under oath, and their action is wholly unrestrained, either by judgment, law, or conscience;" the board had fully determined in advance to revoke the license of the plaintiff without regard to the facts.

Section 2296 of the Revised Laws of Minnesota of 1905 provides in part that "the board may refuse to grant a license to, or may revoke the license of, any person guilty of immoral, dishonorable, or unprofessional conduct, but subject to the right of the applicant to appeal to the governor." It is obvious that this section is incomplete in itself. It is equally certain that the section must be construed together with other sections of the Revised Laws and general principles of law which are applicable. It is not true, as the complaint set forth, that the board is not required to take oath. The subscription of an oath is expressly required by section 2677. It is true that no notice nor form of notice is prescribed by section 2296. The gist of the power to revoke necessarily implies, however, the ability on the part of the board to prescribe legal forms. This section does not expressly confer on the board power of administering an oath. The deficiency, however, is fully supplied by section 2682. The nature and necessary construction of that statute confers that power. It is immaterial that its exercise is limited to questions of fact. No witness could properly swear to matters of law. While it is true that this section provides that such a board "shall have the power to administer such oaths as they may deem necessary to the proper discharge of their duties," it does not provide that they must. It was objected that the administration of an oath is therefore discretionary. If an instance were presented in which, as a matter of fact, the conclusion of the board rested on unsworn testimony, the question involved in that argument would be presented. No such state of facts was before the court in this case. The objection that the board has not the power to compel the production of documentary evidence is equally untenable. Section 4655 expressly confers the authority.

Objection was made to the form of notice served on the plaintiff by the board. That notice recited that it had been made to appear to said board that he had been guilty of unprofessional conduct. This he said demonstrated the prejudgement by the board of the merits of the case. Of this notice the trial court said: "From a lawyer's standpoint, the language employed (in the notice) might be improved, but it is simply a citation to answer before the board certain charges touching

the professional and possibly the moral conduct of the plaintiff." This the supreme court thinks was the logical and proper construction. The notice was infelicitous, but not legally ineffective.

The constitutionality of the statute was attacked. This proceeding was commenced under the statute as it existed prior to the amendment thereof by chapter 474 of the General Laws of 1909; but it is clear that subsequent proceedings must conform to the statute as thus amended. The principal objection to the old statute was that it failed to provide a physician proceeded against for removal with an opportunity to review a possible removal before some tribunal authorized to hear and protect his rights, and hence deprived him of his liberty and property without due process of law. The new statute expressly provides for an appeal to the district court of the proper county on questions of law and fact, and thus answers every requirement of due process of law. It was intended to obviate the constitutional objection of the old statute. As it will govern further proceedings herein, it is unnecessary to determine the validity of the old statute. It is to be noted that the definition of the offense against professional propriety is in no wise altered. The change is one of procedure alone, and secures to the person proceeded against all his constitutional rights. The ability of the legislature to effect such change is beyond question. If the plaintiff should be removed, he would then have the right to review all proper questions on appeal. No adequate reason appears for granting him an injunction enjoining the board from proceeding further in the matter.

Physician Administering Anesthetic Not Liable from Not Protesting Against Operation Not Favored

The Supreme Court of Vermont says that the case of Lawson vs. Crane & Hall (74 Atl. R. 641) purported to be against the defendants as surgeons for not properly setting and caring for the plaintiff's broken leg. It appeared that at the plaintiff's house, some time after his injury, a Dr. Warren, assisted by a Dr. Burbank, broke over and set the plantiff's leg; Dr. Crane administering the anesthetic, but taking no other part in the operation. The plaintiff, in the opening of his case, called Dr. Crane as a witness, and asked him if he did not consider Dr. Warren's operation proper, and he said that he did not as it was performed, and in the place it was performed. He was then asked whether he made any objection to it or protest against it in the time of it, and he said that he did not. To this the defendants excepted, and the court holds that it was error, under the circumstances of the case, to admit the testimony objected to.

It appeared that a few days before that operation, the court goes on to say, that the defendants and Dr. Warren, who had been called for the purpose, met at the plaintiff's house and conferred as to whether anything or what further should be done to his leg. Dr. Crane advised that it be put into a plaster cast for a while, and then, if any further operation was to be performed, that the plaintiff be taken to some hospital where he could have expert care and attention. But it was finally determined at that conference to cut into the leg, break over the bone, and wire the parts together; and it was arranged that Dr. Warren should perform the operation, Dr. Crane consenting to administer the anesthetic, and in a few days the operation was performed accordingly, as before stated. Dr. Warren had exclusive charge of the case at the time of this operation, and directed everything done, and the charge of the case was with him ever after. There was no evidence tending to show that Dr. Crane was ever employed to have general charge of the case, but all the evidence tended to show that his employment was confined to the several occasions when he was called to assist.

Under such circumstances, it was error to admit the testimony objected to. Dr. Crane had already advised against any operation at the time and in the place it was performed; but his advice had been disregarded, and the operation was being performed contrary thereto, and was not subject to his control. Therefore he was not called on to object to, nor to protest against it, and hence no inference of approval of it could be drawn against him from his silence in that respect.

The plaintiff obtained a judgment in the lower court, but that is reversed and his petition dismissed, with costs.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal

March 26

1 *Cerebrospinal Meningitis in An Infant Two Months Old. L. Fischer, New York.
2 *Some Dermatologic "Manias and Phobias." W. S. Gottheil, New York.
3 Surgical Hemostasis. H. G. Wetherill, Denver, Colo.
4 Typhoid Carriers. R. C. Rosenberger, Philadelphia.
5 A Further Suggestion Concerning the Relation of Life-Insurance Companies to the Longevity of their Policy Holders. B. Foster, St. Paul.
6 Surgical Procedures in the Military Service. F. T. Woodbury, Fort Assinniboine, Mont.
7 The Serodiagnosis of Syphilis. H. F. Swift, New York.
8 *A New Theory of the Origin of Papillitis (Choked Disc). J. Windbiel, Amsterdam, N. Y.
9 *Operation for Correction of Hammer-Toe. R. E. Soule, New York.

1. **Serotherapy of Cerebrospinal Meningitis.**—Fischer reports a case of meningitis in an infant two months old, in which the diagnosis was made by tapping the lateral ventricle, and calls attention to the fact that the intraventricular method of injection has not proved successful in cases previously reported. The disease had commenced with vomiting, anorexia and gastric discomfort. These symptoms were relieved by a laxative, but two days later the mother noticed twitching of the arms, stiffening of the neck muscles, rolling of the eyeball, restlessness and insomnia, and at times a sudden piercing cry as though the child were in pain. On the following day the child was admitted to the hospital and the diagnosis not being positive, expectant treatment was carried out for a few days. Lumbar puncture was done and 1 c.c. of turbid blood-tinged fluid was withdrawn. The fluid was examined microscopically for meningococci with negative results. Three other lumbar punctures resulted in dry taps, and as the symptoms of rigidity opisthotonos, fever, and twitching were marked it was decided to tap the lateral ventricles. Fifteen c.c. of turbid fluid containing pus were withdrawn from the right ventricle, smears from which showed intracellular Gram-negative cocci. The ventricles were then irrigated with normal saline solution at 105 F. The excess of fluid was allowed to drain out through the needle and 2.5 c.c. of serum were injected slowly into the ventricles. During the injection of serum the infant's color changed from a waxy pallor to a uniform red flush all over the body. One-half hour after the injection the infant remained flushed, perspired profusely, and frothed slightly at the mouth; otherwise the condition was good. The next day the ventricles were again irrigated with 40 c.c. of saline solution and 20 c.c. of serum injected. On the next day the general condition was poor, opisthotonos was marked, arms rigidly extended, and palms everted outward. Occasionally the child flexed the arms and legs at elbows and knees. It lay quietly although not asleep; when a strong light was held in front of the face the dilated pupils contracted. Perspiration was free. Even a light touch with a pencil caused a spasm of muscular contractions involving all the limbs, and later these contractions occurred every few minutes without outward irritation. The pulse was 140, but regular and of good tension. On the next day lumbar puncture in the fourth interspace resulted in dry tap. A second needle was then inserted in the third interspace, and 15 c.c. of serum were injected, about 3 c.c. of which returned through the first needle. Then 15 c.c. were injected through the first needle, 5 c.c. of which returned through the second; in all, the infant retained from 20 to 25 c.c. of serum. Better results on the whole were obtained from the intraventricular injections. Two days later, 15 c.c. were injected into the ventricles, although no ventricular fluid could be withdrawn. The infant gradually improved during the next month, and was discharged 2½ months after admittance in normal condition. The eyes were examined by two ophthalmologists and both reports showed no evidence of blindness, nor is there evidence of deafness. Throughout its illness the child was breast-fed.

2. **Leprosy.**—Gottheil reports cases to prove the correctness of the assertions that under the conditions here prevalent at least, the lepra infection, while intractable and progressive, is very feeble; that with ordinary non-ulcerative cases, at least

the danger to others is very small; that many of the patients can pass along for years of practically good health and capacity for work after they are infected; and that leprosy is probably not hereditary, though, of course, the children living with leprous parents are especially exposed to the contagion. In advanced cases, of course, the patients belong in the hospital; in milder ones a home which the patients could voluntarily seek should be provided; but to practically incarcerate patients in the early stages and make a public charge of them is required neither for the protection of the community nor by the patients' needs.

8. **Origin of Papillitis.**—This theory, first propounded by Schieck, is based on the pathologic and anatomic examination of fresh bases of papillitis in which the posterior bulb section including the opticus was examined through serial cuts or sections, thereby showing that the inflammatory theory (Leber-Deutschmann) cannot possibly be right. All fresh specimens showed signs of edema at the distal end of the optic nerve, but not the least evidence of an inflammation either in the optic nerve iself or in its sheaths. Neither can the Schmidtman lymph space theory solve the causation of choked disc, because the fluid in the vaginal space was found to be of too small amount to cause pressure on the nerve and strangulation of the blood vessels. Much less credibility has Deyl's theory of the compression of the central vein within the intervaginal space. And also that of Knapp with regard to compression of the vein in its course through the edematous dural sheath, since at both points the vein was found wide open. On the other hand, a very noticeable widening of the perivascular lymph channels in the axial strand was found in every case.

9. **Operation for Correction of Hammer-Toe.**—After the usual preparation of the foot for operation and after the Esmarch bandage has been applied, a skin incision, one and one-quarter inches long, is made at the outer aspect of the plantar surface of the toe, the center of which incision is at the flexed joint. The skin flaps are dissected laterally, sufficiently to expose the underlying structures. The incision is continued through the subcutaneous structures, being careful to expose the digital branch of the artery and the nerve and to prevent their injury while continuing the dissection down to the joint. The sheath containing the flexor tendons is then dissected free from the joint and held aside sufficiently to allow of the removal of the articulating joint surfaces with the chisel, observing due care to have sufficient flat surface at right angles to the shafts of the contiguous bones as a result of the arthrodesis. No bone suture is necessary. The subcutaneous structures are then allowed to fall back in place and are held by a few fine buried catgut sutures. The skin is closed with interrupted chromic gut and dressings applied. A plaster of Paris bandage, fixing the toes in hyperextension, making the flexor tendons tense, thus holding the bony surfaces of the phalanges operated on in close apposition and in straight line, is finally applied. After ten days, the plaster of Paris is split and the dressings are removed sufficiently to expose the field of operation. Then the dressings are restored and maintained in the original position for six weeks. The patient is allowed up on crutches after the first dressing.

Boston Medical and Surgical Journal

March 24

10 *The Present Status of Vaccine Therapy. W. Tileston, New Haven.
11 Local Anesthesia (Neumann) in Ear Surgery. J. J. Hurley, Boston.
12 *Tuberculosis of the Shoulder in Children. J. W. Sever, Boston.
13 The Hospital Dietitian. W. F. Boos, Boston.

10. **Present Status of Vaccine Therapy.**—According to Tileston in certain localized infections, particularly those due to the staphylococcus and tubercle bacillus, vaccine therapy has clearly proved its worth and stands on firm ground. In the general infections it has not so far shown results which are distinctly better than those with other forms of treatment.

12. **Tuberculosis of Shoulder in Children.**—In Sever's series there were 11 children who developed abscesses which required operations. There were 8 who needed one operation, 5 who had two, 1 who had three, and in 5 cases resection, partial or complete, was necessary of the head of the humerus. As is natural in these cases which required frequent operations, there was the greatest amount of bone destruction and they generally required excision of the head of the bone. The results are not encouraging, even with the best treatment. An ankylosed joint is usually the ultimate result. When the case involves much bone and cartilage, ankylosis always occurs, but when the type is synovial there may be some motion. Eleven cases showed no motion in the joint. In four of these there had been resection of the head of the humerus, 1 child had a moderate amount of motion following resection, and 6 who had not had resection showed motion varying from a very slight amount to about one-half normal.

Kentucky Medical Journal, Bowling Green

March 1

14 Organization's "Firing Line." V. E. Simpson, Louisville.
15 The Importance of the Secretary of the County Medical Society. W. W. Richmond, Clinton.
16 The Duties of the County Secretary. J. J. Rodman, Owensboro.
17 Medical Aspect of Gastric Ulcer. U. V. Williams, Frankfort.
18 Measles (Morbilli). T. A. Frazer, Marion.
19 The Tonsils During Childhood. A. O. Pfingst, Louisville.
20 Arteriosclerosis. J. W. Botts, Owenton.
21 Value of the Tuberculin Test in the Dairy. G. P. Sprague, Lexington.
22 Indications, Contraindications and Dangers of Forceps in Obstetrical Work. O. B. Damaree, Frankfort.
23 Anemia. J. F. Garvey, Pleasureville.
24 The Antrum, Frontal and Mastoid Sinuses. V. E. Smith, Brooksville.
25 What the Medical Examiner Needs and How to Provide it. W. E. Grant, Louisville.
26 The Medical Examiner's Report. D. C. Morton, Louisville.
27 Extrauterine Pregnancy. J. Barnhill, Owensboro.
28 Diuretics. S. P. Anderson, Russelville.

March 15

29 Abortion. C. Farmer, Louisville.
30 *The Balsam-Oil Dressing in Surgery. A. L. Parsons, Louisville.
31 Woman as a Life-Insurance Risk. H. J. Farbach and J. G. Cecil, Louisville.
32 Indicanuria. F. C. Askenstedt, Louisville.

30. **Balsam-Oil Dressing in Surgery.**—The advantages of the balsam-oil dressing are stated by Parsons to be as follows: (1) There is continuous drainage of the wound surface; (2) wound secretions are not retained under an impervious scab, and the absorption of toxins is thus avoided; (3) bacteria are killed and eliminated from the field; (4) epithelium grows and is not rudely torn off at each dressing; (5) dressings are almost painless; (6) granulations are encouraged but do not become spongy; (7) irrigation is unnecessary; and (8) the wound does not require redressing oftener than at intervals of from 48 to 72 hours.

Medical Fortnightly, St. Louis

March 10

33 Touring the Lands Where Medical Science Evolved. R. G. Eccles, Brooklyn.
34 The Indeterminate Stage. W. F. Waugh, Chicago.
35 Rupture of Membrana Tympani While Using a Telephone. A. F. Koetter, St. Louis.

Virginia Medical Semi-Monthly, Richmond

March 11

36 Cure of Uterine Prolapse. H. A. Royster, Raleigh, N. C.
37 Treatment of Certain Conditions Secondary to Lost Compensation. J. G. Nelson, Richmond.
38 *Effect of Pregnancy on Laryngeal Tuberculosis. C. R. Dufour, Washington, D. C.
39 Two Cases of Pellagra. J. L. Early, Saltville.
40 *Invagination of the Small Intestine into the Colon: Operation, Death. J. T. Kelly, Washington, D. C.
41 Hookworm in Virginia—Its Prevalence in Certain Piedmont Sections. J. A. Waddell, University.
42 Importance of Diet in Nasopharyngeal Troubles. A. C. Palmer, Urbanna, Va.
43 A Case of Diphtheria. C. S. Webb, Bowling Green.

38. **Effect of Pregnancy on Laryngeal Tuberculosis.**—Laryngeal tuberculosis whether present at the time or developing during gestation, is increased very much during pregnancy. This development of the disease renders suffocation imminent, from the edema which often accompanies it. Tracheotomy is the only means for relieving the suffocation, and as it cannot always be done in time to save life, this fact has led to the acceptance of laryngeal tuberculosis as a positive indication for the artificial interruption of pregnancy.

40. **Invagination of Small Intestine Into Colon.**—On opening the abdomen in a case of intussusception, Kelly found that the small intestine had inserted itself into the colon from the ileocecal valve to within an inch and a half of the anus. This was pulled out, but the part above the cecum was so necrosed and gangrenous that the head of the cecum and about four inches of the ileum had to be resected. This was done very quickly the child being removed from the table in as good condition as when he was placed there. His bowels moved soon after he had reached the bed. In spite of stimulation, he died the same night. The point of chief interest in the case is that the patient lived seven days after the intussusception occurred, and also to note with what ease an operation might have been done had the diagnosis been made earlier.

New York State Journal of Medicine, New York

March

44 *When to Operate in Appendicitis. J. A. Blake, New York.
45 *Appendicitis in Children. C. N. Dowd, New York.
46 *Masked Appendicitis. G. E. Brewer, New York.
47 Analysis of 1,411 Operations on the Appendix. C. A. McWilliams, New York.
48 *Conditions Simulating Appendicitis. A. B. Johnson, New York.
49 Interpretation of a Differential Leucocyte Count. T. H. Dexter, New York.
50 *Heredotuberculosis. J. L. Archambault, Cohoes.
51 Remote Symptoms from Intestinal Irritation in Infants and Children. C. A. Frost, Utica, N. Y.

44, 45, 46, 48. Abstracted in THE JOURNAL, Feb. 26, 1910, pp. 735, 736.

50. A similar article on this subject by the same author appeared in *Albany Medical Annals*, January, 1910.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

March

52 *Intramural Abscess of the Puerperal Uterus. J. A. Sampson, Albany.
53 Operative Technic in its Relation to Shock. C. M. Rakestraw, Savannah, Ga.
54 Treatment of Septic Abortion. E. W. Pinkham, New York.
55 Treatment of Inevitable and Incomplete Abortion. W. P. Pool, Brooklyn.
56 Legal Status of Criminal Abortion. A. C. Vandiver, New York.
57 *The Use of Chloroform in Treatment of Eclampsia. W. Ward, New York.
58 *Twenty-seven Cases of Latero-Lateral Anastomosis of the Ileum to the Sigmoid Flexure for Mucous Colitis. G. H. Noble, Atlanta, Ga.
59 *Suppuration of a Uterine Fibroid with Unusual Manifestations. E. A. Schumann, Philadelphia.
60 A Double Uterus with Laceration of the Cervices. G. E. Shoemaker, Philadelphia.
61 Fibroid Tumors Complicating Pregnancy and the Puerperium. W. Krusen, Philadelphia.
62 Primary Adenocarcinoma of the Body of the Uterus: Special Reference to An Early Diagnosis. C. N. Ballard, Oklahoma City, Okla.
63 Case of Pseudo "Viable Abdominal Pregnancy." S. C. Carson, Greensboro, Ala.
64 Ectro-Hemimelia of the Right Upper Extremity. J. F. Arteaga, Havana, Cuba.
65 Gastric Ulcer in Childhood. L. M. Bowes, Chicago.
66 Vaginitis. W. B. Meister, Brooklyn.
67 Pertussis. K. MacEvitt, Brooklyn.

52. **Intramural Abscess in the Puerperal Uterus.**—The reported authentic cases of intramural abscess of the puerperal uterus, according to Sampson, are few in number, probably not over 25, and, as many of them are briefly described, he does not feel warranted in drawing definite conclusions concerning the various phases of the subject. Nevertheless a general summary is not out of place. There are two distinct groups of cases: 1. Those in which the uterine abscess or abscesses are the only results of the puerperal infection present in the case, or if not, they are the most important ones and the principal cause of the patient's illness, as in the first two cases reported. The condition in this group exists as a distinct clinical entity. 2. Those in which the uterine condition is secondary in pathologic importance to others which may result from puerperal infection. There may be multiple abscesses in the organs and structures of the pelvis including the uterus, or the abscesses in the uterus may be overshadowed by some such condition as purulent peritonitis or thrombophlebitis, as in the last two cases reported. The uterine condition in this group loses its entity on account of the greater importance of the other conditions present. These cases are very rare, and are one of the results of puerperal infection. The number, size and distribution of these abscesses resemble closely those of uterine myomata. The patient gives a history of puerperal infection following labor or abortion, which has not cleared up, *i. e.*, has become chronic. The subjective symptoms may be slight. On the other hand, the general symptoms of infection and the local ones of pelvic inflammation may be severe. The general signs of infection are present; they vary in severity, but may be of a low grade. Diagnosis is not always possible, and it must be by exclusion. The following possible terminations of this condition present themselves and all have clinical confirmation: (1) rupture into the uterine cavity; (2) rupture into the peritoneal cavity; (3) extension into the retroperitoneal tissues; (4) rupture into the intestine; (5) rupture into the bladder; and (6) rupture of a cervical abscess into the vagina. The condition should be treated by surgical interference.

57. **Chloroform in Treatment of Eclampsia.**—The usual plan at the Sloane Maternity, New York, is to deliver as soon as possible, consistent with the mother's soft parts, after the occurrence of the first convulsion, if not before. If the cervix is soft and dilatable, an immediate *accouchement forcé* is done. If the surface is rigid and undilatable, preliminary softening by the Voorhees bag is used, the patient meanwhile being put on active anti-eclampsia treatment. There are here one or two periods when an anesthetic is required, and until last year chloroform was invariably used at the Sloane Maternity. The amount of the drug used varied with the individual case. For the introduction of the bag little is necessary, but the average patient is not easily controlled, her apparent strength is remarkable, and in some cases at least considerable chloroform is likely to be used. The records show that the average duration of the anesthesia for each of 15 patients was 43 minutes, even including in the average, several post-partum cases in which, with normal deliveries, but from one to five minims of chloroform was used for the control of the head and delivery over the perineum. To one patient chloroform was administered for 120 minutes, to another for 107, to another for 68, and so on. The charts also show that the patients who were in the worst condition on admission were those who required the longest anesthesia. Naturally these patients did not all receive chloroform to the surgical degree throughout the entire time, obstetrical anesthesia being all that was desired for at least a part of the time, but even so, it is evident that the anesthesia was prolonged and the amount of the drug used considerable. A further use of chloroform, as commonly used in the treatment of eclampsia, is for the control of the convulsions. Since March 15, 1909, there have been at the Sloane Maternity 12 cases of eclampsia in a series of 1,261 confinements. Any patient showing any symptoms of a toxemia, no matter how slight, has been treated without chloroform. Ward feels that by this method they have undoubtedly cut down the number of patients showing actual convulsions, *i. e.*, eclampsia. In these 1,261 women Ward has used no chloroform whatever in toxemic or eclamptic cases except in two patients early in the series. Neither of these patients was very toxic, as these cases go, and only small amounts were used for delivery. There have been no maternal deaths. A small series such as this means little, and similar results have been obtained under the chloroform treatment in a larger series of cases. Ether has been used for actual delivery or for any manipulations when an anesthetic has been required. These patients take ether as well as chloroform, and there is no difficulty in its use. Aside from the control of the convulsions, Ward uses the regular accepted treatment of the condition—emptying of the uterus as soon as consistent with the mothers' soft parts; veratrum viride, chloral, nitroglycerin, hot packs or hot-air baths, colon irrigations, forced fluids, etc. Looking at the convulsions as purely a symptom he makes no effort to control them on their own account, except as they are controlled by the general treatment which is designed partly to keep them in check, and at the same time, to stimulate as much as possible the eliminations.

58. **Latero-Lateral Anastomosis of the Ileum.**—All the cases observed by Noble on which this report is based were bad ones, and the patients were willing to submit to anything

holding out the least encouragement. With few exceptions, they were poorly nourished, anemic, neurasthenic subjects, often suffering from atonic dilatation of stomach, achylia, pyloric insufficiency, enteroptosis, and various pelvic lesions. They were in a state of invalidism, some having been confined to bed for from a few months to as long as two years, and were selected for the operation because they had been subjected to thorough trials of medical treatment and diet without material mitigation of symptoms.

Of the total number, 27, 18 now have evacuations of bowels from one to three times daily without laxatives. Of the remaining 9, 3 take laxatives, 2 use injections of either water or oil, 2 control motions by regulating their diet, of 1 no record has been received, and there is 1 other case too recent to record. About 75 per cent. of the patients are relieved of constipation sufficiently to avoid the use of medicines; 2 reported constipation; and 2 who acquired the habit of using injections before the operation have not allowed themselves an opportunity to see how the bowels will move without them. The relief of colicky pains has been remarkable; some individuals recovered in a few weeks and others gradually improved. Tenderness and soreness also disappeared after the effects of the operation cleared up. One of the most noticeable effects was the relief of gaseous distentions, some enormously distended abdomens, requiring anodynes to relieve pain almost daily, being promptly and effectually relieved by the operation. Only a few of the recent patients report any discomfort from this cause. Twelve patients pass no mucus at all, 10 very little, at times, 4 recent patients reported mucus much decreased, and 1 patient has not been heard from directly; 22 have been cured; 1 case is not reported. All have gained more or less in weight and strength. In 2 cases the appendix had previously been removed without affecting the colitis. In about half the remaining cases, appendectomy was done at the time of anastomosing intestines, but none of them showed any advantage or improvement over those in which the organ was left intact. The operation is based on the principle that mucous colitis is largely caused by constipation and putrefactive decomposition. The direct object of the anastomosis is to drain the most intensely infected section of the ileum, preventing its discharges into the cecum; for the amount of decomposition, irritation and absorption of toxins is in proportion to the quantity and character of material entering the colon. In the technic of the operation, the suture method is preferred, and the anastomosis is made as low down on the ileum and sigmoid as the two portions of the intestinal canal can be approximated without tension.

59. **Suppuration of a Uterine Fibroid.**—The point emphasized in this case by Schumann is that the constitutional disturbance and inflammatory reaction were due to a relatively minute focus of suppuration but one in which the pus was under high tension. A routine examination of the tumor and uterine appendages gave no hint of the cause of the disturbance, which was only made manifest by the opening of the small abscess cavity about the root of the polyp.

St. Paul Medical Journal

March

68 Occurrence of Deformity in Joint Disease. Its Importance in Perpetuating Latent Lesions and the Necessities for their Correction. C. F. Painter, Boston.
69 Laboratory Examination of Stomach Contents. T. W. Stumm, St. Paul.
70 Infant Feeding. R. N. Andrews, Mankato, Minn.
71 Technic of Appendectomy. W. E. Ground and H. T. Ground, Superior, Wis.

American Journal of Surgery, New York

March

72 Hemolytic Action of the Serum in Renal Disease: Is the Hemolysis of Prognostic Importance? V. Pleth, and V. W. Pleth, Seguin, Tex.
73 Pathologic Variations and Complications of Appendicitis. C. H. Goodrich, Brooklyn.
74 *Ionic Surgery in Cancer of the Mouth and Nose. G. B. Massey, Philadelphia.
75 Compound Posterior Dislocation of the Head of the Ulna. H. Neuhof, New York.
76 Operation for Fracture of the Femur. C. F. Barber, Brooklyn.

74. **Ionic Surgery in Cancer.**—Between 1893 and January, 1905, Massey employed ionic surgery in 14 cases of malignant growths within the mouth, 2 of which were operable in the ordinary sense and 12 inoperable, most of them hopelessly inoperable. Of these 4 patients were cured, including the 2 operable patients, and are well 5, 8, 9 and 12 years after treatment. Three died during or shortly after the operation, 2 were relieved for a long period of time, but finally relapsed, and 5 operations were failures to arrest the disease for any length of time.

New Mexico Medical Journal, Las Vegas

February

77 Hay Fever. J. W. Tinder, Roswell.
78 Milk-Sickness (Trembles, Slows or Alkali Poisoning). C. F. Montgomery, Roswell.
79 Treatment of Ileocolitis with Saline Transfusion. C. F. Beeson, Roswell.

Journal Experimental Medicine, New York

March

80 *Influence of Various Organs on the Catalytic Activity of the Blood. M. C. Winternitz and J. P. Pratt, Baltimore.
81 The Depressor Substance of Dog's Urine and its Disappearance in Certain Forms of Experimental Acute Nephritis. R. M. Pearce, New York.
82 *Peritoneal Patching of the Aorta. A. Carrel, New York.
83 *Remote Results of Replantation of the Kidney and the Spleen. A. Carrel, New York.
84 Physiology of the Immediate Reaction of Anaphylaxis in the Guinea-Pig. J. Auer and P. A. Lewis, New York.
85 An Attenuated Surra of Mauritius with Immunity Tests after Recovery. B. T. Terry, New York.
86 Pleomorphism and Pleobiosis of *Bacillus Bifidus Communis*. H. Noguchi, New York.
87 *Experimental Acute Nephritis: The Vascular Reactions and the Elimination of Nitrogen. R. M. Pearce, M. C. Hill and A. B. Eisenbrey, New York.
88 *Experimental Epidemic Poliomyelitis in Monkeys. S. Flexner and P. A. Lewis, New York.

80. **Influence of Organs on the Catalytic Action of the Blood.**—The conclusion of Batelli and Stern that catalase is not found in a single tissue but is produced by various tissues which support each other in preserving high catalytic activity of the blood is verified. After destruction of the function of the thyroid the catalytic action of the blood declines and after destruction of the function of the kidneys the catalytic action of the blood and the tissues declines. The thyroid is intimately concerned in preserving the high activity of the blood and this is of interest because of the influence of this gland on physical and mental activity.

82. **Peritoneal Patching of the Aorta.**—Carrel found that by using a patch of peritoneum the aortic wall can regenerate itself so perfectly as to become absolutely normal, even though the new wall is composed of tissues different from the normal tissues of the aorta, yet the morphology was not greatly modified.

83. **Remote Results of the Replantation of the Kidney and Spleen.**—Carrel is now able to replant (in the same animal) the kidney or spleen on the renal or splenic vessels easily and safely. After the operation the animals remain generally in good health. Thus the left kidney of a dog was removed and perfused with Lockes' solution and replanted, the circulation being reestablished after an interruption of 50 minutes. Fifteen days afterward the right kidney was removed and the animal has remained in perfect health up to the time of this report, that is to say 23 months; hence the operation does not interfere with the function of the organs, at least within the time specified. In 4 other experiments three successful results were obtained. In one case the spleen disappeared. In the other 3 experiments the anatomic conditions of the replanted kidney or spleen were found entirely normal, when removed a long time after the operation. Several dogs, whose left kidneys were replaced some months by the left kidneys from other dogs are now living and in good health. Some time later it is proposed to endeavor to determine, if possible, the value of the transplantation of organs.

87. **Experimental Acute Nephritis.**—By the study of experimental nephritis with physiologic and anatomic methods, types in which either tubular or vascular changes predominate may be distinguished. Potassium chromate, uranium nitrate and corrosive sublimate cause extensive tubular injury without evidence of vascular injury, while arsenic and cantharadin produce but little injury to the tubules but cause

anuria. Physiologically, these two types represent tubular and vascular nephritis. In the tubular form the output of nitrogen is considerably diminished. In the vascular nephritis the nitrogen elimination is greatly increased.

88. **Experimental Epidemic Poliomyelitis.**—In this article Flexner and Lewis give a connected and detailed statement of their work on experimental poliomyelitis in monkeys. Most of the results obtained have been reported in a preliminary way from time to time in THE JOURNAL (1909, lii, 1639, 1913, 2095; 1910, liv, 45, 535). This study has yielded a large number of important facts bearing on the disease in man. The filterable character of the virus has been discovered and many of its properties have been ascertained. Some observations in regard to immunity have been made, as well as in regard to the clinical and pathologic peculiarities of the disease. A basis has been secured for the development of preventive measures.

Maryland Medical Journal, Baltimore

March

89 The Ebb and Flow of Hypnotism. H. A. Kelly, Baltimore.
90 The Freund-Wertheim Operation for Complete Prolapse of the Uterus. J. M. Hundley, Baltimore.
91 Commercial Value of an Early and Correct Diagnosis. W. J. Todd, Mt. Washington, Md.
92 Jenner (1749-1823). H. M. Cohen, Baltimore.

Cleveland Medical Journal

March

93 Use of the Hydrostatic Dilator in Obstetrics. A. J. Skeel, Cleveland.
94 Clinical Application of the Tonics. R. Pollock, Cleveland.
95 Ankylostomiasis. M. Coplan, Cleveland.
96 *Traumatic Neuroses from the Legal Point of View. G. A. Boone, Cleveland.
97 Ovarian Cyst Weighing 62 Pounds Removed from a Patient aged 80; Recovery. E. C. Brush, Zanesville, Ohio.
98 Microphthalmus: Exhibition of Specimen. E. G. Rust, Cleveland.
99 *Mercurial Treatment of Pulmonary Tuberculosis. J. Placak, Cleveland.
100 *Analysis of the Principal Causes of the Infant Mortality of Cleveland, 1908 and 1909. A. F. Furrer, Cleveland.

96. **The Traumatic Neuroses.**—Boone's observations covering nearly 17 years, have been in connection with the claim and legal departments of liability insurance companies, street and steam railroads, and in the cases in which traumatic nervous disorders furnished the basis of claims, he estimates that at least 95 per cent. of the claimants fully recovered within a reasonable time after their claims have been disposed of.

99. **Mercury in Pulmonary Tuberculosis.**—Placak's experience with the succinimid of mercury has been limited to about 20 cases, yet this number has been sufficient to convince him that mercury will fall by the wayside as many so-called specifics in tuberculosis have done in times gone by. Many of the patients after a length of time claimed they received no benefit and on account of the pain refused to take the injections.

100. **Infant Mortality of Cleveland.**—The infant mortality in Cleveland, according to Furrer, is approximately 25 per cent. of the total death-rate (1907, 1908, 1909). The so-called severe infectious diseases play such a small part in the causation of this mortality that they are comparatively unimportant, scarlet fever, whooping cough, diphtheria and tuberculosis, together causing but 50 deaths out of 1,800. Diarrhea and enteritis, convulsions and "early infancy," or in other words the gastrointestinal diseases, were directly or indirectly responsible for about 1,200 deaths, which represent two-thirds of our total infant mortality. Furrer urges that the present classification of diseases pertaining to infants as reported in city mortality statistics should be revised.

Louisville Monthly Journal of Medicine and Surgery

March

101 Gastroenterostomy. L. Frank, Louisville.
102 Prophylaxis of Pellagra. C. H. Lavinder, Washington, D. C.
103 Picrotoxin. H. H. Redfield, Chicago.

American Journal of Physiology, Boston

March

105 *Decompression of the Ammonia-Destroying Power of the Liver After Complete Thyroidectomy. A. J. Carlson and C. Jacobsen, Chicago.
106 Action of the Proteins of Blood on the Isolated Mammalian Heart. L. W. Gorham and A. W. Morrison, Baltimore.
107 Blood-Pressure of the Sheep. M. Dresbach, Ithaca, N. Y.
108 *Influence of the Removal of Fragments of the Intestinal Tract on the Character of Nitrogen Metabolism. II. Removal of Small Intestine. A. Carrel, G. M. Meyer and P. A. Levene, New York.

105. **Ammonia-Destroying Power of the Liver.**—Carlson and Jacobson experimented on thyroidectomized cats and foxes to determine the influence of removing the thyroid and parathyroids on the metabolism of ammonia by the liver cells. In animals treated in this way when symptoms of excitation and depression are exhibited, the blood contains more ammonia than that of normal animals and the livers show a marked depression in the ammonia-destroying power as compared to the liver of the normal animals. In animals which show no symptoms these changes do not appear. The increase in the ammonia content of the urine and blood after complete thyroidectomy, is due, at least in part, to liver depression rather than to acidosis independent of the liver. The authors suggest that the detoxication function of the parathyroid is probably due to influence on the liver and other organs rather than to neutralization processes in the glands themselves.

108. **Removal of Fragments of the Intestinal Tract.**—Carrel, Meyer and Levene continued their experiments to determine the functions of the different segments of the digestive tract by removing the small intestine. They found that there was a diminution of the absorption of ingested proteins and of leucin, but there seemed to be no disturbance of the power of assimilation and retention of the absorbed protein. They conclude, therefore, that the stomach and not the intestines is the organ principally concerned in the function of protein assimilation.

American Journal of Orthopedic Surgery, Philadelphia

February

109 Malformations. A. Thorndike, Boston.
110 Multiple Hand and Foot Deformities in the Third, Fourth, Seventh and Ninth Children of the Same Family, the others Being Normal and the Parents Normal. DeF. Willard and B. L. Singer, Philadelphia.
111 Some Myogenous Types of Rigid Spine. G. R. Elliott, New York.
112 *Etiology of Hallux Valgus or the Intermetatarseum. J. K. Young, Philadelphia.
113 Subluxation of the Third Cervical Vertebra. E. W. Ryerson, Chicago.
114 Traumatic Lesions of the Atlas and Axis. S. J. Mixter and R. B. Osgood, Boston.
115 *Relation of Posture to Human Efficiency and the Influence of Poise on the Support and Function of the Viscera. J. E. Goldthwait, Boston.

112. Abstracted in THE JOURNAL, Aug. 7, 1909, p. 479.

115. Published in the *Boston Medical and Surgical Journal*, Dec. 9, 1909, and abstracted in THE JOURNAL, Dec. 25, 1909, p. 2177.

Texas State Journal of Medicine, Fort Worth

March

116 The Public School and the Prevention of Tuberculosis. J. S. Lankford, San Antonio.
117 Causes of Psychoneurosis. J. S. Turner, Dallas.
118 Optical Iridectomy: Special Reference to Leucoma. E. J. Burton, McKinney.
119 *Amber-Tinted Lenses for the Relief of Asthenopia. H. J. Hilgartner, Austin.
120 *Surgical Relief of Bright's Disease. W. Cantrell, Greenville.
121 Sanitation. W. H. Blythe, Mount Pleasant.

119. **Amber-Tinted Lenses for Asthenopia.**—The use of amber-tinted lenses in ten cases, by Hilgartner, has been satisfactory, with one exception, a case of extreme hysteria.

120. **Surgical Relief of Nephritis.**—Cantrell has faith in surgical effort for the relief of Bright's disease based on some little work. He mentions 19 patients, including a number who were operated on for floating kidney, and who presented tube casts and epithelium. He has lost only one of his patients and this loss occurred nearly two years after the first operation. In this case he was induced to make a second attempt, hoping that he might be able to relieve the distressing symptoms. The patient did not die immediately after the operation, but several weeks later. Cantrell's entire list of living patients is greatly improved. They are all well pleased with the effort, and while Cantrell cannot claim that any one of them is cured, he is convinced beyond a doubt that they are all greatly relieved, and this relief, he says, is well worth the effort which has been made.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

March 12

1 *Causes and Treatment of Functional Dyspepsia. D. Drummond.
2 *Reflex Pain in Diseases of the Abdominal Viscera. A. E. Maylard.
3 How to Operate for Appendicitis. R. P. Rowlands.
4 *The Effect of Abdominal Compression in a Case of Very Rapid Heart. W. Gordon.
5 *A Red Line on the Gums. G. A. Stephens.
6 The Cerebellum and its Diseases. J. S. R. Russell.

1. **Causes and Treatment of Functional Dyspepsia.**—Drummond is so convinced of the practical importance of hunting out the inducing cause in each case of indigestion with a view to its removal, that he regards investigation of the secretory activity of the stomach, followed by prescription of appropriate diet or acid and antacid remedies, as being valuable, no doubt, for giving relief, but only too often insufficient for a cure. Foremost among perplexing and often highly elusive causes of gastric dyspepsia stand mental and nervous disturbances, he says. Practice among all classes of society furnishes many examples which belong to this group, and the fact will at once occur that one of the most useful of therapeutic measures in stomach cases is rest in bed.

2. **Reflex Pain in Disease of Abdominal Viscera.**—Without attempting to differentiate clinically between the lesions causing pain in the same spot, Maylard gives a sort of classified list of the diseases which may be expected to cause reflex pain in certain definite areas. Thus, (1) perforation of gastric or duodenal ulcer, rupture of gall-bladder and acute hemorrhagic pancreatitis cause acute pain to be felt in the epigastrium; (2) perforation of the appendix or of the small intestine, ruptures, strangulations and obstruction from various causes, embolism or thrombus of the mesenteric vessels, etc., cause acute pain to be felt in the region of the umbilicus; and (3) rupture in tubal affections including extrauterine pregnancy, causes acute pain to be felt in the hypogastrium. He emphasizes the fact that while diseases of the abdominal viscera may give rise to reflex pain located in one or other of the anatomic regions into which the abdomen is artificially divided all reflex pains experienced in these particular regions do not necessarily signify diseases of the abdominal viscera.

4. **Abdominal Compression in Tachycardia.**—Abdominal compression is a recognized method of treatment in paroxysmal tachycardia and in cases cited by Gordon it appeared to have been the chief means of saving life. April 3, a man, aged 68, was thrown down by a large motor car which backed on to him. A certain amount of general shock was sustained. The man was not neurotic. His pulse on the day of the accident was 100, and between April 3 and 10 it varied between 100 and 80. Two days after the accident he complained of severe abdominal pain and vomited three times. On April 9 he began to complain of an aching pain over the heart, with a good deal of flatulence and abdominal distention, and his pulse became rather weak, intermittent and irregular. The heart was apparently of normal size, free from murmur, but with rather feeble sounds. There was slight pulmonary emphysema, but no other lung trouble. The urine was normal.

A mixture containing bismuth, a sodium salt, carbolic acid, and nux vomica was ordered and a simple aperient. The pulse was then very small, irregular and intermittent, running about 100, and the patient was pale and perspiring. There was no dyspnea, no distention of the veins in the neck, no sign of cardiac dilatation. There was no murmur or friction to be heard, only rather feeble sounds. He still complained of aching over the heart.

Under treatment the pulse improved somewhat, remaining, however, very intermittent. Next day it rose further in frequency, and at 2 p. m. was running at 144. On April 13, the right saphenous vein became thrombosed. The pulse was then counted at 180. Next morning it was counted at 74. Cheyne-Stokes breathing was very marked on April 14, and occurred occasionally for several days. From this time until April 21, a very serious condition was maintained, the rate of the pulse varying greatly from time to time, but being usually excessive, and often very rapid. At no time was there dyspnea, cardiac dilatation or murmurs, distention of veins or edema, except in the thrombosed leg. During full inspiration the feeble rapid pulse became absolutely obliterated. Gordon then decided to try the effect of abdominal compression, and a stout flannel binder was tightly applied over the entire abdomen at 11:40 a. m. No other change was made in the treatment. The pulse returned to an ordinary rate, 72. The effect of the binder, Gordon thinks, can best be explained by its effect on the overcharged splanchnic circulation.

5. **Red Line on Gums.**—The typical lead line, according to Stephens, is seen to be just under the surface of the edge of the gum, and situated in the papillæ, and under a magnifying glass presents an interrupted appearance. These papillæ in some cases become enlarged almost to the extent of rupture. About two years ago, when examining the men at a factory in his district where lead ore is handled, Stephens was particularly struck with the fact that a large percentage of their gums showed a distinctly red line. This red line is, in his opinion, due to an enlargement of the papillæ at the edge of the gum, and peculiarly enough, was seen in lads who had been only from 14 to 28 days at the works, as well as in the outside men, such as masons, whose contact with fumes occurred only when the latter were diluted. The conclusion that Stephens arrives at from such fact is that the so-called lead line is no proof of lead in the system, but that it appears in workers whose gums have been irritated by particles other than lead.

Lancet, London

March 12

7 *Angina Pectoris. W. Osler.
8 The Medical Examiner in Life Assurance. H. W. G. MacKenzie.
9 *Clinical Significance of Gastric Hypersecretion and its Connection with Latent Diseases of the Appendix. W. S. Colewick.
10 *Appendicular Gastralgia. H. J. Paterson.
11 The Commoner Forms of Chronic Rheumatism (Fibrositis) and their Treatment. A. P. Luff.
12 Enteric Intussusception with Henoch's Purpura. F. W. Collinson.
13 *Treatment of Vomiting. J. Snowman.
14 Reform of Medical Poor-Law Relief. C. T. Parsons.
15 Maison Barlier. H. Mac-Naughton-Jones.

7. **Angina Pectoris.**—Osler has notes of 268 cases in all—231 men, 37 women. If we recognize a mild neurotic or pseudo-neurotic, and a grave organic or true form, there were of the former 225, and of the latter, 43. Osler has not counted *les formes frustes* unless a patient had subsequent severe attacks. Of the severer form of 225 cases, there were only 14 women. On the other hand, of the minor type, of 43 cases there were 23 women. The age incidence is late, the largest number of cases occurring in persons over 50. Of the 612 deaths in England and Wales, only 36 occurred between the ages of 35 and 45; while between 45 and 65 there were 291 deaths. In Osler's list the age was much the same. There were under 30 years of age, 9; between 30 and 40, 41; between 40 and 50, 59; between 50 and 60, 81; between 60 and 70, 62; between 70 and 80, 13; and above 80, 3. In women the age incidence is, on the whole, a little lower than in men.

A point that stands out prominently in Osler's experience is the frequency of angina pectoris in physicians. Thirty-three of his patients were physicians, a larger number than all the other professions put together. Only 7 were above 60 years of age, one a man of 80, with aortic valve disease. The only comparatively young man in the list, 35, was seen nearly 20 years ago in an attack of the greatest severity. Worry and tobacco seem to have been the cause. He has had no attack now for years. Two cases were in the fourth decade, 13 in the fifth, and 11 in the sixth. Neither alcohol nor syphilis was a factor in any case; of the 26 patients under 60, 18 had pronounced arteriosclerosis, and 5 had valvular disease. In a group of 20 men, every one of whom Osler knew personally, the outstanding feature was the incessant treadmill of prac-

tice, and yet, every one of these men had an added factor, worry.

So far as symptoms are concerned, Osler's cases fall into three groups (1) *les formes frustes;* (2) mild; and (3) severe.

1. The mildest form "*les formes frustes*" of the French, with substernal tension, uneasiness, distress, rising gradually to positive pain, is a not infrequent complaint, one, indeed, from which few escape, is associated with three conditions. Emotion is the most common and the least serious cause.

2. Under the mild form, angina minor, come 43 cases. Osler has grouped under these, the neurotic, vasomotor and toxic forms, the varieties which we formerly spoke of as false or pseudoangina. The special features of this variety are: the greater frequency in women, the milder character of the attacks, and the hopeful outlook.

3. Severe angina, angina major, is represented by 225 cases, of which 211 were in men. Two special features here are, existence in a large proportion of all cases of organic change in the arteries and liability to sudden death.

9. **Clinical Significance of Gastric Hypersecretion.**—Hypersecretion of gastric juice, according to Fenwick, invariably depends on an organic lesion, which usually takes the form of a chronic ulcer of the stomach or duodenum, calculus in the gall-bladder, or latent disease of the appendix, although it is probable that future investigations will prove that pancreatic calculus, tubercle of the cecum, and carcinoma of the appendix are also capable of producing it. Of the last named, one case has already come under his observation. This disorder of secretion is merely the physiologic expression of a reflex irritation of the gastric glands, and is therefore not entitled to be regarded as a disease. The continuous flow of hyperacid gastric juice, whatever be its cause, always excites severe inflammation of the stomach, and is liable to be followed by ulceration of that viscus or the duodenum. This secondary ulceration is at first superficial in character and may not be demonstrable on examination of the exterior of the stomach. Minute hemorrhagic erosions capable of producing alarming hematemesis and melena are usually associated with and caused by this abnormality of the gastric secretion. Latent disease of the appendix as a result of former acute inflammation is accompanied by a peculiar form of digestive disturbance. In this condition, subacidity of the gastric juice with an absence of free hydrochloric acid is the rule.

With the exception of hemorrhage, all the symptoms that are regarded as pathognomonic of duodenal ulcer are in reality due to the gastric hypersecretion that always accompanies this lesion. It follows, therefore, that a severe example of hypersecretion may, as a rule, be safely diagnosed as a case of duodenal ulcer. Contrary to the usual belief, carcinoma of the pylorus is sometimes accompanied by extremely well-marked hypersecretion. In such cases the morbid growth develops with extreme rapidity and violent hemorrhages, due, possibly, to digestion of the tumor, are exceptionally frequent.

10. **Appendicular Gastralgia.**—Paterson holds that appendicular disease may give rise to symptoms which closely mimic the supposed symptoms of gastric and duodenal ulcer. The prominent symptom is epigastric pain or severe discomfort after food; in many cases there are sour eructations, vomiting, and even hematemesis and melena. The radiation of epigastric pain to the lower abdomen is suggestive of appendicular trouble. Gastric analysis reveals, in some cases, hyperchlorhydria, in others a normal amount of free hydrochloric acid, in others a marked diminution or absence of free hydrochloric acid. As a rule, there is an increase of the volatile acids, and in some cases evidence of hypersecretion. Some cases of hypersecretion or acid dyspepsia and many cases of supposed gastric or duodenal ulcer are due to latent appendicular disease.

The evidence that the gastric symptoms are due to appendicular disease is threefold: (a) the majority of patients are cured by appendectomy; (b) the influence which appendectomy has on the gastric contents; and (c) the frequency of a previous history of gastric symptoms in those who have an attack of acute appendicitis. The symptoms are probably the result of intestinal toxemia due to intestinal stasis. The effect of gastric secretion is, in the early stages, possibly due to pyloric spasm, but more probably to some influence of the appendix on gastric secretion. Appendicular gastralgia is apparently more common in women than in men.

The important lessons to be learned from these cases are as follows, Paterson states:

1. No operation should be performed on the stomach except when a definite organic lesion of the stomach or duodenum exists. Gastrojejunostomy will not cure appendicitis.

2. In all operations for supposed gastric or duodenal ulcer, the conditions of the appendix should be carefully investigated.

13. **Treatment of Vomiting.**—In the treatment of vomiting Snowman says that the first point to determine is whether it is an incidental symptom of an acute illness or a cardinal feature of some chronic disease. The ordinary therapeutic measures available for treatment of vomiting are numerous and somewhat conflicting in their variety, a testimony to the failure which so often attends their administration. Nausea may be relieved occasionally either by sips of extremely hot water or by sucking fragments of ice. This contrast is still further seen in the circumstance that sometimes a tight abdominal binder will stop nausea, whereas at other times this very unpleasant sensation yields when the clothing around the abdomen is loosened. Perfect recumbency in the horizontal position should be maintained, and such local applications to the epigastrium as sinapisms, blisters or leeches are frequently very useful. The washing out of the stomach with weak boric lotion or alkaline solutions is an excellent method of treating the persistent vomiting in gastric dilatation or the gastric catarrh of infants.

Snowman in discussing the treatment says that the favorite drug for vomiting is bismuth in one of its various forms. Cerium oxalate probably acts in the same way as bismuth but nothing definite is known of its pharmacology. It has acquired a reputation in the treatment of vomiting of pregnancy, but clinical experience generally fails to confirm it. Creosote, iodin and carbolic acid may be grouped together as a series of drugs which allay vomiting when suitably employed. Aconite has some vogue in the treatment of vomiting, but it must be given in large doses. Chloretone, he believes, is an effective remedy when some painful local disease such as cancer of the stomach, is responsible for the vomiting. One-third of a grain of cocain will occasionally put a stop to a bout of vomiting, and is one of the most effective remedies available for sea-sickness. Hydrocyanic acid is another drug with a reputation in gastric vomiting, but if it acts it does so forthwith, and if it proves to be unsuccessful at first it is merely a waste of time to persist with it. Opium, he declares, is the most valuable remedy for vomiting which is persistent and exhausting, and then it must be given in the form of a hypodermic injection of morphin.

Medical Press and Circular, London

March 2

16 Conditions of the Prostate Associated with Urinary Obstruction. W. S. Handley.
17 The Negro and Negroid Races. A. Keith.
18 Technic of the Operative Treatment of Fractures of the Femur. R. L. Joynt.
19 Effects of Neglected Constipation in School Girls. F. Hernaman-Johnson.
20 Influence of the Addition of Calcium Salts on the Coagulability of the Blood *in Vitro*. B. J. Collingwood.

Clinical Journal, London

March 2

21 The Manifestations of Eyestrain. E. Clarke.
22 Dysphagia. L. B. Rawling.
23 Practical Hints for Consumptives. M. Paterson and F. C. Shrubsall.

Journal of Tropical Medicine and Hygiene, London

March 1

24 The Guinea-Worm in Domesticated Animals. R. T. Leiper.
25 Diseases Encountered During Ten Years' Medical Work on the Shores of Lake Nyasa. R. Howard.
26 Native Sanitation in Sierra Leone. H. E. Arbuckle.

Archives des Maladies du Cœur, etc., Paris

February, III, No. 2, pp. 65-144

27 *Edema of the Lungs with Paroxysmal Increase in the Blood Pressure. (Remarques sur l'œdème aigu du poumon avec hypertension artérielle paroxystique.) K. Petren and G. Bergmark.
28 *The Arterial Pressure and the Suprarenal Glands in the Tuberculous. A. Sézary.
29 *Paroxysmal Tachycardia and Treatment by Induced Vomiting. (Tachycardie paroxystique et médication vomitive.) P. Savy.
30 Exosmosis of Salts in Blood Corpuscles and Hemolysis. (La diffusion des sels globulaires et l'hémolyse.) J. Troisier.

27. A similar article by the same authors was abstracted in THE JOURNAL, Feb. 5, 1910, page 500.

28. **Arterial Pressure and the Suprarenal Glands in the Tuberculous.**—Sézary has been examining the condition of the suprarenals in tuberculous patients whose arterial tension had been systematically recorded during life. His findings fail to sustain the assumption that the lower blood pressure is always the result of lesions in the suprarenals. The low tension at first is probably due to the diffusible toxins of the tubercle bacilli; and it is not until later that the suprarenals become incompetent. In three cases he found a relatively high blood pressure, although autopsy showed complete destruction of the suprarenals. A concomitant nephritis in all these cases was probably responsible for the high arterial tension, but the tension was lower in these patients than in the non-tuberculous who had the same kind of kidney lesions, and there was thus relative hypotension.

29. **Induction of Vomiting in Treatment of Paroxysmal Tachycardia.**—Savy refers to a few cases on record in which an attack of paroxysmal tachycardia was arrested by accidental vomiting after which the patients learned to induce vomiting systematically to arrest the attack. The pulse in one case dropped in thirty seconds after the vomiting from 200 to 94, from 209 to 96, and from 200 to 80. The means used to induce vomiting seemed to be immaterial—tepid water, tickling the throat, ipecac, etc.—but ipecac generally proved most convenient, two or three tablespoonfuls of syrup of ipecac always answering the purpose. Laache's patient was able to arrest the milder attacks by holding his breath or applying heat to the precordial region. Apert's patient was also able occasionally to arrest an attack by holding his breath. Others have reported the effectual action of a fright, of prolonged inspiration, of an automobile accident, compression or faradization of the pneumogastric nerves—all acting in the same way by direct or indirect excitation of the pneumogastric nerve or its centers. The effect of emetics probably belongs in this category, but their action is much more reliable and effectual than any of the other measures, while they can be more systematically applied in treatment. He has been unable to find any cases on record in which the attack was arrested by vomiting occurring spontaneously.

Presse Médicale, Paris

February 26, XVIII, No. 17, pp. 145-152

33 Case of Exstrophy of the Female Bladder; Five Operations before Age of 25. G. Marion.
32 Technic for Operative Treatment of Anal Fistula. (Extirpation large des fistules à l'anus.) L. Chevrier.
Cysts in the Prostate. F. Legueu and H. Verliac.

March 2, No. 18, pp. 153-160

34 *Proper Diet in Kidney Disease. (Régime alimentaire dans les affections du rein.) G. Linossier and G. H. Lemoine.
35 Radium Treatment of Cancer of the Tongue. (Radiumthérapie du cancer de la langue.) Fominici and D. Martel.

March 5, No. 19, pp. 161-168

36 Vaccine Treatment of Gonococcus Infections. C. Jarvis.
37 Suprarenal Treatment. (Emploi de l'adrénaline en thérapeutique.) O. Josué.

34. **Injurious Effect on the Kidney of Imperfectly Cooked Albuminous Food.**—In the experiments on rabbits and guinea-pigs reported the animals were injected subcutaneously with a maceration of meat in one-half part water, or with meat juice, egg albumin or milk, the aim being to determine the effect on the kidneys of albumin of animal origin. The effect was estimated by the albuminuria which almost invariably followed, its promptness, intensity and duration paralleling the congestion and other evidences of injury of the kidneys found on dissection of the animals. By this technic the influence of the digestive apparatus was eliminated. The results seem to demonstrate that raw animal albumin has always a decidedly injurious action on the kidneys, but this injurious action is nullified if the albumin has previously been in sufficient contact with the gastric juice. When the albumin is cooked, the gastric juice has to act on it for some time before it can be absorbed, and thus it is rendered non-toxic for the kidneys; raw albumin is absorbed too rapidly for it to feel the action of the gastric juice. The practical conclusions of the research are that uncooked albuminoid foods should never be taken by persons with kidney trouble, especially rare meats, raw milk and eggs with the white still transparent. Even raw milk, the authors state, may do more harm than well-cooked meats. The research also demonstrated, they add, that the organism seems to become accustomed to the nephrotoxic action of the albuminoids in time, and consequently it is best to keep up a regular ration rather than to permit great fluctuations, as for instance, ingestion of meat by a vegetarian. The fact that the same signs of an injurious influence were evident in the liver as well as in the kidneys in this research indicates, they think, that the conclusions probably apply to persons with liver derangement as well as to those with nephritis. The ability of the stomach to digest albuminoids is thus an important factor in nephritis as insufficient gastric digestion allows them to be absorbed in full toxic intensity.

Semaine Médicale, Paris

March 9, XXX, No. 10, pp. 109-120

38 *Gastric Amyxia: Lack of Gastric Mucus. (L'amyxie gastrique.) L. Cheinisse.

38. **Lack of Secretion of Mucus in the Stomach.**—During the last four years several articles have appeared on the pathologic absence of secretion of mucus in the stomach. The term "amyxorrhea" has generally been applied to the condition but Cheinisse comments on the absurdity of this term and proposes calling the condition "amyxia." The lack of the protective coating for the stomach walls afforded by the layer of mucus, explains a number of morbid conditions, especially in hyperchlorhydria. Schalij reported last year some cases in which the symptoms were those of hyperacidity, but one hour after the test meal the acidity was scarcely above normal while the lack of the protecting mucus explained the disturbances. Kaufmann found that silver nitrate relieved such patients, which fact he explains as due to the action of this drug in stimulating the production of mucus. Schalij found that oil seems to replace the missing mucus and cover the stomach mucosa with a bland protecting coating. The oil has to be ingested before eating; otherwise it only floats on the surface of the stomach content and does not come in contact with the mucosa. He has his patients take from 1 to 5 c.c. of olive or almond oil before meals, increasing the dose to 10 or 15 c.c. at need. Cheinisse remarks that gelatin or any similar substance might be used in the same way to advantage as a substitute for the oil. The benefit from bismuth may be due to its stimulating action on the secretion of mucus. Recent experimental research by Dubus seems to have established this; the bismuth not only promotes the secretion of mucus but the mucus in turn causes the bismuth to adhere to the walls of the stomach. All the data at present on hand in regard to gastric amyxia, Cheinisse adds, harmonize with what Turek has published in respect to the factors concerned in the healing of peptic ulcer.

Berliner klinische Wochenschrift

February 21, XLVII, No. 8, pp. 325-372

39 Gastrotomy for Removal of 103 Nails, etc. M. Borchardt.
40 Technic for Resection of Large Intestine. (Zur Methode der Dickdarmresektion.) A. Tietze.
41 Modifications of Technic for the Wassermann Test. (Verschiedene Modifikationen der Wassermannschen Reaktion.) F. Hoehne. (Id. mit chlorsaurem Kali nach Brieger und Renz.) C. Lange.
42 The New Methods of Staining the Tubercle Bacillus. (Tuberkelbacillenfärbung.) P. Eisenberg.

February 28, No. 9, pp. 373-420

43 *Senile Pulmonary Tuberculosis. (Altersphthise.) R. Staehelin.
44 *Deceptive Area of Dulness over the Apex of the Right Lung. (Falsche Dämpfung in der rechten Lungenspitze.) H. J. Hing.
45 *Frequency of Tuberculosis in Children. (Häufigkeit der Tuberkulose im Kindesalter.) H. Nöthmann.
46 The So-called Miliary Aneurisms in the Brain. (Die sogen. miliaren Aneurysmen der Hirngefässe.) L. Pick. Commenced in No. 8.
47 Experimental Research on Fat Tissue Necrosis. (Zur Kenntnis der Fettgewebsnekrose.) C. Frugoni and G. Stradiotti.
48 Roentgen-Ray Pictures of the Stomach during the Act of Vomiting. (Ueber den Brechakt im Röntgenbilde.) Levy-Dorn and S. Mühlfelder.
49 Treatment of Hypertrophied Prostate. (Behandlung der Prostatahypertrophie.) W. Hirt.
50 Action of Tincture of Iodin in Surgical Sterilization. (Wirkung der Jodtinktur bei der Hautdesinfektion.) K. H. Kutscher.
51 Recent Research on the Hypophysis Cerebri. A. Münzer.

43. **Senile Phthisis.**—Staehelin refers to the cachexia sometimes encountered in the elderly and possibly ascribed to

lurking cancer but autopsy discloses no tendency to malignant degeneration but only an active process of tuberculosis in the lungs. In other cases the diagnosis may be merely heart disturbances and pulmonary emphysema but a tuberculous process is found installed in the emphysematous lung. These mistakes in diagnosis are so common because the tuberculous process in the aged induces a different syndrome from that observed earlier in life. The possibility of tuberculosis should always be borne in mind when an elderly person has a subfebrile temperature or a low temperature of abnormal type, when one-half of the thorax does not expand symmetrically with the other half, even if the difference is very slight. Gilbert regards this retraction and immovability of one-half of the chest as the most important sign of this latent phthisis differentiating it from a purely emphysematous affection. In percussing the stroke should be very light. During auscultation, the patient should breathe deeply and cough hard, to reveal possible râles. Skiagraphs are often instructive in the elderly. In a recent case the patient a man of 60, with emaciation, cardiac insufficiency, some edema and congestive catarrh, the Roentgen rays disclosed a tuberculous process in the lungs although the physical findings were more than doubtful and there was scarcely a trace of dulness and the sputum was free from tubercle bacilli. The bacilli are harder to find than in the sputum from younger patients. The advantage of correct differentiation is that the annoying search for other causes for the cachexia can then be abandoned and also that the family can be warned of the danger from contamination by the sputum, although it may not be necessary to inform the patient himself of the true diagnosis.

44. This article was abstracted in THE JOURNAL, April 2, page 1180.

45. **Frequency of Tuberculosis among Children.**—Nothmann reports the tuberculin cutaneous and subcutaneous tests applied to 263 children of the poor at Düsseldorf with positive findings in 47 per cent. of the children between 3 and 5 years of age; in 56 per cent. of 25 between 6 and 7; in 70.7 per cent. of 41 between 8 and 9, and in 81.5 per cent. of 54 between 10 and 11; in 84.5 per cent. of 97 between 12 and 14, and in 100 per cent. of 12 between 15 and 17. Von Pirquet found 90 per cent. affected among the children 14 years old examined at Vienna, and Moro found 60 per cent. in those between 10 and 14 examined at Munich. Schlossmann, on the other hand, has found only 5 per cent. reacting positively in his private practice in Düsseldorf. These findings, Nothmann declares, emphasize anew the importance of prophylaxis of tuberculosis among the children of the poor as the most important phase of the antituberculosis campaign.

Correspondenz-Blatt für Schweizer Aerzte, Basel

February 20, XL, No. 6, pp. 145-176

52 Tuberculous Processes in Bronchial Glands and Lung Disease. (Bronchialdrüsentuberkulose und Lungenerkrankungen.) Huguenin. Commenced in No. 4.

March 1, No. 7, pp. 177-208

53 *Early Diagnosis of Exophthalmic Goiter. (Zur Frühdiagnose der Basedow'schen Krankheit.) T. Kocher.

54 *Diagnosis and Treatment of Neurasthenia and Neuroses. (Psychoneurosen und Psychoanalyse.) J. A. Haslebacher.

53. **Early Diagnosis of Exophthalmic Goiter.**—Kocher's article is the substance of his address on receiving the Nobel prize. He states that the disease may occur without one or all of the three cardinal symptoms, the goiter, the exophthalmos and tachycardia. The condition may be recognized by the tremor and by symptoms in the eyelids before there is any protrusion of the eyeball. If the patient gazes at some object there may be slight retraction of the upper lids; this does not invariably occur, but this momentary morbid retraction of the upper lids almost inevitably follows if the object gazed at is moved rapidly up and down. This means of inducing the momentary spasm may give positive findings, he asserts, long before any other Basedow symptoms are apparent. This lid symptom is thus extremely instructive for differentiation when signs of hyperfunctioning of the thyroid suggest a suspicion of approaching exophthalmic goiter. He ascribes the lid symptom to the muscle which Landström has recently demonstrated in the upper lid, innervated by sympathetic fibers. The toxic substances generated by the thyroid in excess probably act most intensely on the sympathetic nerves or ganglia, which explains the symptoms in this disease, especially the tachycardia without objective changes in the heart. The lack of influence on the disturbances from the ordinary heart tonics, especially digitalis, is another argument in favor of this assumption. He warns not to overlook incipient exophthalmic goiter when consulted by patients for supposed heart disease, especially when there are palpitations. The Basedow taint should be suspected, the purer the tachycardia and the less the objective changes in the heart. The differentiation is rendered certain by this eyelid symptom; another important sign is tenderness of the thyroid, also a vascular murmur in the form of a systolic blowing heard over the thyroid arteries. The consistency of the thyroid or some part of it may also be suspicious. Kocher called attention two years ago to the importance of changes in the blood as an early sign of exophthalmic goiter; the leucocytes are only half as numerous as usual, the neutrophiles being much reduced, while the lymphocytes are twice the normal figure. Kottmann has also called attention to a reduction in the coagulating power of the blood in this disease in contrast to what is observed in myxedema; with cachexia thyreopriva coagulation is accelerated. The absence of anemia in the Basedow syndrome is in itself a striking finding. Kocher regards the disturbance in the blood picture as so constant and regular that he refuses to operate in its absence, but otherwise he advocates operative treatment now as the best means for rapid and complete cure. His experience includes a number of cases in which he declined to operate as the symptoms were scarcely serious enough for this, but later had cause to regret his refusal as the most favorable moment for the operation was thus allowed to pass.

54. **Psychoneuroses.**—Haslebacher gives an instructive summary of Freud's views in regard to neurasthenia and psychoneuroses in general and their effectual treatment by psychoanalysis and advice based thereon.

Deutsche medizinische Wochenschrift, Berlin

March 3, XXXVI, No. 9, pp. 393-440

55 Epidemic of Infantile Paralysis. (Auftreten der spinalen Kinderlähmung [Heine-Medinsche Krankheit] in Vorpommern.) E. Peiper.

56 Interesting Bacteriologic Findings in Three Cases of Typhoid. L. Bitter.

57 Recovery from Diabetes with no Signs of Recurrence during 10 Years to Date. (Ein nachweislich 10 Jahre lang geheilt gebliebener Fall von Diabetes mellitus.) Teschemacher.

58 Changes in Retina in Scorbutus. (Zur Kenntnis der Netzhautveränderungen beim Skorbut.) S. Kitamura.

59 Revision of a Classical Case of Diverticulum in the Esophagus. C. D. Spivak (Denver).

60 Scopolamin with General Inhalation Anesthesia. (Weitere Erfahrungen über Skopolamin-Mischnarkose.) P. Sick.

61 *The Disturbances Induced by Non-Eruption of Teeth. (Das Krankheitsbild der Zahnretention.) A. Pfister.

62 Aseptically Prepared Catgut. (Steril-Katgut [Kuhn] in der Praxis.) H. la Roche.

63 Roentgen-Ray and Operative Treatment of Myomas. Schindler.

64 Dosage of Roentgen Rays by Photographic Technic in Daylight. (Dosierung der Röntgenstrahlen auf photographischem Wege ohne Anwendung einer Dunkelkammer.) A. Strauss.

61. **Syndrome from Non-Eruption of Teeth.**—Pfister reports three cases to show the disturbances liable to follow when the molar teeth are not normally erupted. The jaw is generally swollen and this swelling may persist for years, and there may be pain for which the patient is liable to consult the neurologist rather than the dentist. The symptoms may simulate a cancerous growth, but a radical operation is not required; resection of the outer wall of the cyst and tamponing for a few days or opening a passage through the bone for the tooth generally prove sufficient. As a rule the disturbances develop between the fifteenth and thirtieth years; the diagnosis is rendered certain by Roentgen-ray examination.

Fortschritte der Medizin, Leipsic

February 17, XXVIII, No. 7, pp. 193-224

65 *Abdominal Massage in Treatment of Whooping Cough and Tracheobronchial Catarrh. (Behandlung des Keuchhustens und anderer Luftröhrenkatarrhe durch die Bauchmassage.) E. Hönck. Concluded in No. 8.

65. **Abdominal Massage in Treatment of Whooping Cough and Tracheobronchial Catarrh.**—Hönck called attention three years ago to the catarrh which develops in the upper air passages from disturbances in the circulation on account of irritation of the sympathetic nerves during appendicitis. The

tracheobronchial glands may be stimulated to increased secretion and the mucosa may swell preventing expulsion of the mucus. If infection occurs, catarrh is installed, he declares. This connection between the abdomen and the tracheobronchial mucosa explains the benefit of abdominal massage in treatment of such conditions, and he has found it almost a specific in many cases of whooping cough free from febrile complications; mild fever is in itself no contraindication. He relates the details of seven cases to show the benefit derived from cautious massage especially of the back on both sides of the spine. In one case of pneumococcus infection with cough, night sweats, cold feet, bad appetite and emaciation, conditions improved at once and with 5 sittings the patient was practically cured. In a case of pertussis in a woman of 35 all symptoms subsided except a slight cough under massage daily for four days. The patients most effectually benefited are those who have some sensations in the depths of the abdomen or in the walls. In a number of cases children with pertussis were well again in three weeks at most under the abdominal massage; when he stopped the massage after a week the attacks became more frequent and violent and he was requested to continue the massage further. Cough from a tickling sensation in the throat, he says, is also controlled by this method of treatment.

Medizinische Klinik, Berlin

February 27, VI, No. 9, pp. 331-370 and Supplement

69 Examination of the Cardiovascular System for Balneologic Purposes. (Untersuchungemethoden des Kreislaufs, welche für die Balneologie von Interesse sind.) F. Kraus.
70 Importance of Examination of Infants' Stools. (Die Bedeutung der Stuhluntersuchung im Säuglingsalter.) A. F. Hecht.
71 Cause of Myopia. (Die Entstehung der Kurzsichtigkeit.) G. Levinsohn.
72 Combination Treatment of Lupus. (Aus der Praxis der Lupusbekämpfung.) P. F. Becker. Commenced in No. 8.
73 Modern Clothing and Skin Diseases. E. Saalfeld.
74 Relations between Paralysis of Oculomotor Nerve and Lesions in the Nose and Sphenoidal Sinus. (Beziehungen der Lähmung des Nervus oculomotorius zu Krankheiten der Nase beziehungsweise der Keilbeinhöhle.) Ziem.
75 Algebraic Formula to Express Resistances in the Circulatory System. (Ueber Widerstände im Zirkulationssystem und ihre Rolle in einer "Zirkulationsformel.") Sperling.
76 Digestion and Energy-Producing Action of Foods. (Verdauungsarbeit und spezifisch-dynamische Wirkung der Nahrungsmittel.) N. Zuntz. Commenced in No. 8.
77 Comparative Physical and Roentgen-Ray Examination in 120 Cases of Pulmonary Tuberculosis. J. Jacobi.

Therapie der Gegenwart, Berlin

March, LI, No. 3, pp. 97-144

78 *Determination of Intensity of Acidosis in Diabetes as Guide to Treatment. (Zur therapeutischen Bewertung der diabetischen Azidose in der Praxis.) L. Blum.
79 *Salt-Poor Diet in Treatment of Tuberculous Ascites. (Kochsalzarme Diät zur Beseitigung des Ascites tuberculosus.) W. Alwens.
77 Serotherapy of Acute Articular Rheumatism. H. Ratzeburg.
78 Operative Treatment of Surgical Tuberculosis. I. W. Kausch.
79 Treatment of Gonorrhea and Its Complications. A. Nathan.
80 Indications and Contraindications for Vegetable Diet in Treatment of Obesity. (Vegetarische Entfettungsdiät.) B. Latz and A. Albu.

75. **Easy Method of Estimation of Acidosis in Diabetes as Guide to Treatment.**—Blum's communication issues from the university medical clinic at Strasburg, in charge of Moritz; he emphasizes the importance of estimating the degree of acidosis as the only guide for proper treatment. It can be readily determined by gaging the amount of sodium bicarbonate which the patient must take in order to render the urine alkaline. By this simple means it is possible to obtain an instructive insight into the intensity of the acidosis, and thus to regulate the diet accordingly. He gives the tabulated findings in a few typical cases, with the amount of sodium bicarbonate on which the urine changed from an acid to an alkaline reaction. In one case, for instance, with 1.42 gm. acetone and 7.8 total oxybutyric acid, only 10 gm. of sodium bicarbonate was required to keep the urine alkaline, while in another case with the identical figures for the acetone and the oxybutyric acid, 25 gm. of the bicarbonate was necessary to produce the same effect. Another patient with 9.5 gm. sugar, 3.19 acetone, 24 butyric acid and 29.8 total oxybutyric acid, required 30 gm. of the bicarbonate. In another, a most remarkable case, the patient with 7,800 c.c. of urine, 22.27 gm. nitrogen, 180.9 sugar, 16.809 acetone, 30.24 acetone as oxybutyric acid, 96.36 oxybutyric acid, 126.6 total oxybutyric acid and 5.34 ammonia, required 150 gm. sodium bicarbonate before the urine gave a neutral reaction. With 110 gm. the next day the urine became slightly alkaline, and with 80 on the third day the alkalinity became more pronounced. The urine continued alkaline as the amount of the bicarbonate was gradually reduced to 30 gm. in the course of a week. In health, from 5 to 10 gm. of the bicarbonate induces a distinct alkaline reaction, but in mild diabetes 20 gm. is necessary, in the moderately severe 20 or 30, and the serious cases 50 gm. and over. In the severest cases and in diabetic coma it is impossible to obtain an alkaline reaction. Blum warns that the carbohydrates should not be entirely withdrawn until the urine has been rendered alkaline. The method convinces the most skeptical, he says, as to the large amounts of sodium bicarbonate that may be needed in individual cases and also as to the successful results when the proper dosage is reached.

76. **Salt-Poor Diet in Treatment of Tuberculous Ascites.**—Alwens states that at the university medical clinic at Tübingen in charge of Romberg, no benefit was derived from diuretics and local applications in 8 out of 14 recent cases of tuberculous ascites; in 5 cases by the end of three and a half weeks of treatment extremely slight improvement was manifest, and in only one of the cases had the ascites almost entirely disappeared by the end of the fifth week. On the other hand, in another group of 10 patients given only a salt-poor diet, the ascites had entirely vanished by the end of five or seven weeks in all but 2 of the cases. The food consisted of oatmeal, rice, cooked fruits, eggs, milk and unsalted butter, the total intake of salt being from 2 to 3 gm. a day instead of the usual ration of 13 gm. on the ordinary mixed diet. An occasional day of mixed diet was interposed to keep up the patients' appetite. On the salt-poor diet the amount of salt eliminated markedly surpassed the intake. It seems to be evident that the blood in seeking to maintain its osmotic balance during the salt-poor period takes up salt out of the tissues and preeminently out of the ascitic fluid. As the salt is taken up into the blood, it is accompanied by water to keep it in solution, and this excess of water in the blood is rapidly worked off through the kidneys.

Wiener klinische Wochenschrift, Vienna

March 3, XXIII, No. 9, pp. 309-346

81 *Research on the Exposed Overhanging Brain. (Operationen am überhängenden Gehirn.) J. P. Karplus and A. Kreidl.
82 *Operative Treatment of Round Gastric Ulcer. (Zur operativen Behandlung des runden Magengeschwüres.) E. Payr.
83 Dependence of Duration of Incubation on Size of Dose of Infectious Germs. (Inkubationszeit.) O. Grüner and F. Hamburger.
84 *Leg Sign of Tetany. (Bisher unbekanntes Symptom bei Tetanie; Beinphänomen.) H. Schlesinger.
85 Importance of Bacteriologic Examination of Minute Amount of Blood for Clinical Diagnosis of Typhoid and Paratyphoid. F. Schweinburg.
86 Experimental Research on Acute Anterior Poliomyelitis. III. C. Leiner and R. v. Wiesner.

81. **Method of Exposing Base of Brain.**—Karplus and Kreidl relate that an astonishing oversight over hitherto inaccessible regions is afforded by exposing one hemisphere of the brain and allowing its own weight to drag it away from its normal bed, and expose its hitherto hidden under surface. In their experiments on animals they found it possible in this way to open up the space between the brain and the base of the skull thus permitting a number of operations in this region and some interesting physiologic discoveries. Among the latter they mention the finding of a sympathetic center in the hypothalamus thus rendered accessible for electric and other tests. The experiments with the overhanging brain, as they call their technic, caused scarcely any disturbances in the monkeys and other animals. A large window was made in the side of the skull of the anesthetized animal; the animal was then turned on its back, the dura slit and wads of cotton were worked in between the brain and the base of the skull. As soon as the brain had sunk down enough, spatulas were introduced and the hemisphere pushed still farther down, finally exposing the base of the skull to the median line. They were able by this means to separate the hypophysis from the infundibulum. The excised plate of bone was then replaced and sutured; the animals showed no trace of disturbance thereafter, especially no impairment of vision. Experiments on the cadaver have confirmed the facility of this mode of access to the base of the skull, conditions being found approx-

imately the same in the cadaver as in the monkeys. If the human brain should prove as tolerant as the monkey brain, surgical procedures in this region will be much facilitated by this technic.

82. **Operative Treatment of Gastric Ulcer.**—Payr insists that operative measures for gastric ulcer should be strictly individualized for the character and location of the tumor. He believes in more general resort to resection rather than the routine gastroenterostomy. The latter is by no means always successful in curing all disturbances. The main argument in favor of resection, however, is his discovery of signs of a malignant tendency in the assumed benign gastric ulcer. In more than 25 per cent. of his cases of callous and other gastric tumors the microscope revealed carcinoma cells somewhere in the resected patch. Transverse resection leaves conditions quite different from those after excision; patients scarcely ever vomit after the former with the axial coaptation of the stumps, far less often than after a gastroenterostomy or excision.

84. **Leg Sign of Tetany.**—Schlesinger has discovered a phenomenon which he thinks is destined to prove an instructive sign of tetany in the intervals between the attacks. It is connected with flexing the hip-joint; as the patient reclines, if the stretched legs are passively lifted the knees show a tonic muscular spasm of extension while the foot assumes a position of extreme supination or extreme pronation. The phenomenon is also elicited spontaneously if the patient sits up in bed or, when standing, bends forward at the hips. The tonic spasm is preceded by paresthesia in the limb. On the other hand, pressure on the nerve trunks or kneading massage of folds of the skin has no effect in eliciting the sign. It parallels Trousseau's phenomenon, occurring likewise between attacks and on the same side. The leg phenomenon had been found pronounced in four cases of tetany at date of writing, both in children and adults. In one case mentioned the patient had no spontaneous contractions in the legs otherwise.

Zentralblatt für Chirurgie, Leipsic

March 5, XXXVII, No. 10, pp. 353-400

87 *Intravenous Infusion of Epinephrin. (Berichtigung über die Verwendung von Adrenalin.) L. Heidenhain.
88 Intravenous Anesthesia. (Zur Frage der intravenösen Narkose.) L. Burkhardt.
89 *Retention Stomach-Tube in After-Treatment of Severe Peritonitis. (Anwendung des Dauermagenhebers bei der Nachbehandlung schwerer Peritonitisfälle.) C. W. J. Westerman.
90 Pathogenesis of Retrograde Incarceration of the Intestine. (Zur Pathogenie der "Hernie en W" bzw. der "retrograden Darminkarzeration.") F. De Beule.

87. **Intravenous Injection of Epinephrin.**—Heidenhain has found subcutaneous injection of suprarenal preparation in salt solution entirely useless. He has never tried giving it by rectal infusion, but he recommends intravenous infusion as a valuable and entirely harmless method of improving conditions in the circulation as a preliminary to an operation when there is reason to anticipate cardiovascular trouble.

89. **Retention Stomach-Tube in After-Treatment of Peritonitis.**—Westerman comments on the prompt relief that follows lavage of the stomach in case of the local paralysis of the intestine, so frequent with severe peritonitis. The same effect can be obtained with high jejunostomy; vomiting ceases when the distended intestines are emptied of their contents and recovery may ensue in the most desperate cases. The aim is to combat the autointoxication which results from inhibition of the normal intestinal peristalsis. The lecithin in milk, eggs, etc., putrefying in the intestine is split into neurin and cholin with production of other injurious substances. He recently obviated all trouble from this source, he asserts, by introducing a 7-foot rubber tube, about one-fourth of an inch in diameter, through the nose into the stomach, the outer end lying in a pail on the floor. Every half hour the tube was examined to see if the siphon action was continuing properly. In one case over 4 liters of fluid intestinal contents were thus siphoned out of the stomach and large amounts of intestinal gases escaped through the tube. Two days later, the stomach fluid was only slightly tinged with bile and the tube was removed, although the patient protested against its removal for fear of return of the former distress. He has applied this retention stomach tube in 16 cases. If the pharyngeal reflex is lively, the mucosa in the throat is anesthetized beforehand; the tube is introduced through the nose to a depth of about 18 inches and fastened with a string to the head. The patient is allowed to drink freely, which is an additional relief, even although the larger part is evacuated at once, rendering necessary administration of water by other means. The walls of the tube must not be too thin, and it should have two openings in the side below to prevent obstruction by protruding gastric mucosa.

Zentralblatt für Gynäkologie, Leipsic

March 5, XXXIV, No. 10, pp. 339-368

91 Case of Extramembranous Pregnancy. (Graviditas extramembranosa.) B. Nolle.
92 *Diagnosis and Treatment of Uterine Sarcomas. N. Kakuschkin.

92. **Diagnosis and Treatment of Uterine Sarcoma.**—Kakuschkin reports a case in a woman of 39, 8 years after her fifth childbirth. During this interval she had abnormally frequent menses, slight pain in the stomach occasionally, and anemia. A large polyp was found in the vagina and cervix, and was removed by cutting out the base of the pedicle. There was nothing to suggest malignant growth but casual microscopic examination revealed that the polyp was a sarcoma, although the pedicle seemed free from malignant characteristics. There has been no recurrence during the 9 years since. He curetted the uterine cavity after excision of the tumor, painting it afterward with tincture of iodin and draining with iodoform gauze. The case teaches the importance of microscopic examination in even the most benign cases, and also that hysterectomy is not necessary if the pedicle is not involved in the cancer. If hysterectomy is done it may be advisable to make two operations of it.

Zentralblatt für innere Medizin, Leipsic

March 5, XXXI, No. 10, pp. 249-272

93 Stasis Cyanosis in the Head. (Beitrag, betreffend die Stauungblutungen am Kopfe.) Focke.

Riforma Medica, Naples

February 21, XXVI, No. 8, pp. 197-224

94 *Topical Temperature Reaction in Pulmonary Tuberculosis. (Alcuni rilievi topotermometrici nella tubercolosi polmonare.) C. Frugoni and F. Leidi.
95 Incarcerated Femoral Hernia Containing Tube and Bladder. (Ernia crurale destra strozzata contenente la tromba uterina e la vescica.) M. Dardanelli.

February 28, No. 9, pp. 225-252

96 Histologic Research on Glycogen in Kidneys and Liver After Injections of Adrenalin. F. Addari.
97 Seroreaction in Malta Fever. A. Cantani.
98 *Advantages of Enterostomy in Peritonitis. G. Volterrani. Commenced in No. 8.

94. **Topical Temperature Reaction in Pulmonary Tuberculosis.**—Frugoni states that after a tuberculin test the changes in the organs beneath under the influence of the tuberculin are revealed by the regional modification in the temperature. He measures it with a special clinical thermometer with a long horizontal spiral bulb of very thin glass, covered with a bell of thick glass. The thermometer is applied in turn at symmetrical points for from 25 to 40 minutes at a time at each point. As the tuberculous process flares up under the influence of the tuberculin, the temperature shows an increase of from three-tenths to seven-tenths or more of a Centigrade degree over the temperature of the same spot taken before the tuberculin was injected. Even when there is no general reaction to the tuberculin or it is so slight as to be scarcely perceptible, there may be a topical rise in temperature of a Fahrenheit degree or more. He adds that it is possible that extremely careful comparative measurements of the temperature in symmetrical regions may reveal latent foci in incipient tuberculosis.

98. **Enterostomy in Peritonitis.**—Volterrani gives the details of eight cases from the experiences at the Pisa surgical clinic and reviews the literature on the subject, his conclusions all emphasizing the importance and benefit that may be derived from an opening made into the intestine in severe peritonitis even when the condition is too serious to permit a laparotomy. General anesthesia is not required for it, and the practitioner should not hesitate, he declares, to do this simple and harmless operation at need.

The Automobile

FOR THE PHYSICIAN

As a part of his Professional Equipment and as a means of Pleasure and Recreation

THE AUTOMOBILE IN PRACTICE

COULD the practitioner segregate his practice and confine it within certain limits, the condition would seem ideal; but the harder he works and the more skill he acquires, the wider becomes his circuit. The exigencies of practice in a large city, therefore, necessitate some other means than the horse and carriage for him to reach his patrons. Although I had driven horses for twenty-five years, I turned to the automobile in 1902.

EARLY EXPERIENCES

My first venture was a single-cylinder machine (109*). The trials I had cranking it in both warm and cold weather make me unhappy now when I think of it. Three weeks after I had become its owner I became ambitious and started with my wife for a tour expecting to go to Buffalo. It began to rain shortly after we started and we ploughed through mud and water some twenty miles until, on a railroad bridge, I thought I had a favorable place to oil up. I stopped the machinery but, despite all my efforts, I could not make it go again. Our auto journey ended by our being towed to Trenton, some six miles away, behind a coal wagon. I shipped the car to Cleveland and took the remaining portion of the trip on the less exciting but more reliable train.

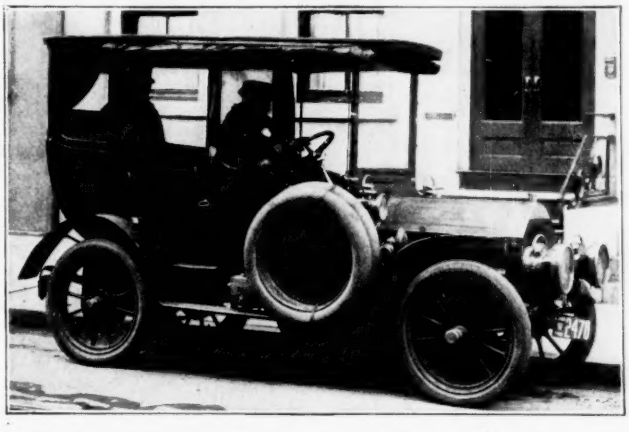


Fig. 1.—Demilimousine (114) of Dr. E. E. Montgomery, Philadelphia.

Reaching Cleveland and ascertaining that the machine was in good order, we started again, this time in central Ohio through clouds of dust. After a ride of 70 miles the wheel of the water pump was broken off and again we had to ship the car back to Cleveland and take to the train. The vagaries of this machine were so numerous and trying that I finally disposed of it. It made so much noise that I never had any difficulty in letting my patients know that I was coming.

My next two ventures were runabouts (110*), two-cylinder machines. As I made a contract with the person from whom I purchased the machine that he was to take care of it, make sure that it was in order and if not get me another in its place for a certain sum each month, I had less trouble with this car. It was rather light weight, however, and as I was pretty heavy, occasionally an axle would break.

I then went to an electric (111*), which rode beautifully, was ever ready to go, was noiseless, but very limited in its speed and still more so if the batteries had run a little while, so that I found myself following rather than leading—an unsatisfactory position for an ambitious man. I therefore disposed of the electric and secured a touring car (112*). This car proved more satisfactory, in that it enabled me to afford my family and friends pleasure while I was traveling about the city for business. With this machine the tire problem was the greatest, owing, I am now convinced, to the want of care on the part of the chauffeur. On one journey of 20 miles we blew out four inner tubes and finally ran for a time with the tire collapsed. While going at a pretty fair speed my companion gave an exclamation as he saw the shoe which had come off running ahead of us and he was certain the entire wheel was gone.

TRIES A STEAMER

In order to leave no variety of machine untried, my next venture was a steam machine (113). Until I became acquainted with this I had so many unusual and unpleasant experiences that my family rather looked for me to undergo premature cremation, especially as I attempted to ignite the pilot light without raising the hood, and the accumulated gasoline exploded in my face, taking off most of what little hair I had left. I found out, however, that such an occurrence was unnecessary and due only to my stupidity. The machine did me more service than any other of the same class I have ever had. It rides beautifully, climbs the steepest hills without the slightest difficulty, and as it is entirely controlled by the throttle, it is capable of moving from a speed of two to one of fifty miles an hour by the motion of the handle governing the latter. The driver of a steam machine must keep his mind on what he is doing; he cannot go wool-gathering, as he must constantly remember that there must be water in the boiler and not too much of it, and that there must be satisfactory steam pressure and sufficient pressure on the gas. To watch all of the many gauges, as well as the road over which one travels, to say nothing of the vehicles and other travelers, certainly suffices to keep the driver wide awake.

PROTECTION AFFORDED BY CLOSED CAR

After recurrent attacks of grip, two of pneumonia, middle-ear disease and a mastoid operation, I began to realize that the human machine I possessed needed more protection, so my next venture was the machine (114) a picture of which accompanies this article. This is a rebuilt 1906 machine. It had seen considerable service before I got it, but it has traveled over 10,000 miles since with scarcely any trouble except that incident to tires.

The weight of the machine, being a metal body, necessarily makes tire wear great, but I do not know that the cost of its up-keep is any greater than that of much less reliable machines. It is a satisfaction to know that one has a machine that is ready for work and is almost sure to take one to one's destination and home again.

GRATIFYING ADVANTAGES

The automobile adds greatly to the comfort and pleasure of the physician: it enables him to extend his practice greatly and to afford pleasure and gratification to the members of his family which are utterly impossible by any other means of locomotion.

E. E. MONTGOMERY, M.D., Philadelphia.

* For names of machines, see explanation in Editorial Department.

FRICTION DRIVE

AFTER reading each of the automobile numbers and nearly enough catalogues to make up the deficit in the post-office department, I decided to buy—as much through the influence of last year's Automobile Number as anything. Also having heard so many owners of small cars say, "When you buy, buy a good one," I decided to buy a friction-driven touring car (149). I ordered my car in March, but did not get it till June, which perhaps was a good thing for the car, as the roads were fine at that time. The agent came and helped unload the car and in two hours took the train for home. So much for training. I wrote to the company for their instruction book and the instructions were to wait, as the book was not out. The last time I wrote, in August or September, it was not out, and I am still waiting. So much for

Fig. 2.—Automobile (149) and residence of Dr. E. A. Cantonwine, Parkersburg, Ia.

instructions—but the experience! Say! The experience was here to stay and a new issue each day. I suppose my experience was very similar to what all new owners have had with the exception of (or maybe better say addition of) the friction-drive. So I shall confine myself to the friction-drive.

To start with, the most of my troubles could have been avoided if I had received some instructions with the machine. There was more friction than drive to start with, but, like everything else about the drive, this was simple when you knew how to remedy it. There is a certain amount of wear on the friction-rim at all times due to the outer and inner sides of the rim having to travel a different distance on the disc. This tends to heat the disc and, with a little slip, enough heat is developed for an automatic foot-warmer, that is, a warmer of mind and body.

I had a new catch made for the speed lever so that it gives me more speeds and wears the disc surface even, which will save trouble by preventing ridges. The expense of the drive has been the welding of one brace-rod. The fiber rim will soon have to be replaced, which will cost about $3. The disc is as good as new. The friction drive is all right, but I believe it requires more attention than a shaft drive. It makes up for this by the saving on the rest of the machinery. There is no jerk in stopping and starting, the speed can be increased gradually and the driver can set his speed according to the road. Sands and hills and mud, of which this part of Iowa has its share, have never stalled me so far. If they ever do I don't believe it will be due to the friction drive.

E. A. CANTONWINE, M.D., Parkersburg, Ia.

BASEMENT AN IDEAL GARAGE

ANY physician, almost, can buy a machine but there are few who can afford to pay the constant repair expense charged by the average garage. The basement garage has proved to me to be the most convenient arrangement for the busy physician. The basement garage is accessible without leaving the house and any physician can slip on a mechanic's suit, go down and in a few minutes repair something which he would otherwise be obliged to bring into the shop and pay perhaps more than he had earned that day.

With this scheme the machine never freezes, is easily washed, the oil lubricates better and any insurance company will allow a machine to be kept in a basement if the gasoline is kept in an underground tank or in the machine. A runabout kept in such a garage is now in its fourth year of constant use with promises of many years of service to come. The accompanying illustration shows the advantages of such an arrangement.

J. B. MCNERTHNEY, M.D., Tacoma, Wash.

Fig. 3.—The car (161) and residence of Dr. J. B. McNerthney, Tacoma, Wash., showing his neat provision for a garage in his basement.

A HIGH-WHEELER FOR WINTER AND A PNEUMATIC FOR GOOD WEATHER

PREVIOUS to April 1, 1907, I used, in my practice, two horses valued at about $500. Then I bought a 10 h. p. air-cooled, two-cylinder machine (122) with hard rubber tires. I kept accurate account of expenses for two years.

A CAREFULLY KEPT EXPENSE ACCOUNT

The total expense was $293.29, which averages $146.64½ for one year, about $12.23, for one month, and $2.82 for every seven days. This is cheaper than shoeing and feeding one horse and keeping buggies in repair. In this total expense I included $58.48 for gasoline; two pairs automobile gloves; two rubber-plush blankets; twice retiring the wheels; all the lubricating oil necessary; replacing two motor-shafts, which were $20 each—said to have broken from "crystallization," but in my opinion, from a flaw in the steel; replacing two sets of

worn out gear sprocket-chains; also batteries, carbid, licenses, tags, etc.; in fact, everything necessary to run the machine for two years. In these expenses the driver is not included because I have the same man I had when I drove the horses.

In the winter of 1907-8 I could not use the machine for four weeks on account of snow and sleighing. In the winter of 1908-9 I used horses three weeks in sleighing. With these exceptions I used the machine to do all my work. I am sure that I did my work in one-third the time it would have taken with two horses.

In my experience of two years with the car I found I had a very serviceable machine; but, like all automobile enthusiasts, I wanted more speed, so, on May 14, 1909, I bought another car (123), a 20 h. p., water-cooled, four-cylinder car. I used this machine until about the middle of December, 1909, when I put it in storage. I had the motor dissected and examined and cleaned and found it in perfect order, except that the connecting rods were slightly loose. At this time my speedometer registered 3,129 miles. In these seven months my total expenses were $128, which averages $18.29 a month, or, per mile, about .041 cent, not including tolls, which in Pennsylvania are an outrage to the automobilist. On several long trips I used 5 gallons of gasoline to each 100 miles traveled. In this period I had five punctures, each caused by a nail or tack. One tire still holds the air that was pumped in when I purchased the car.

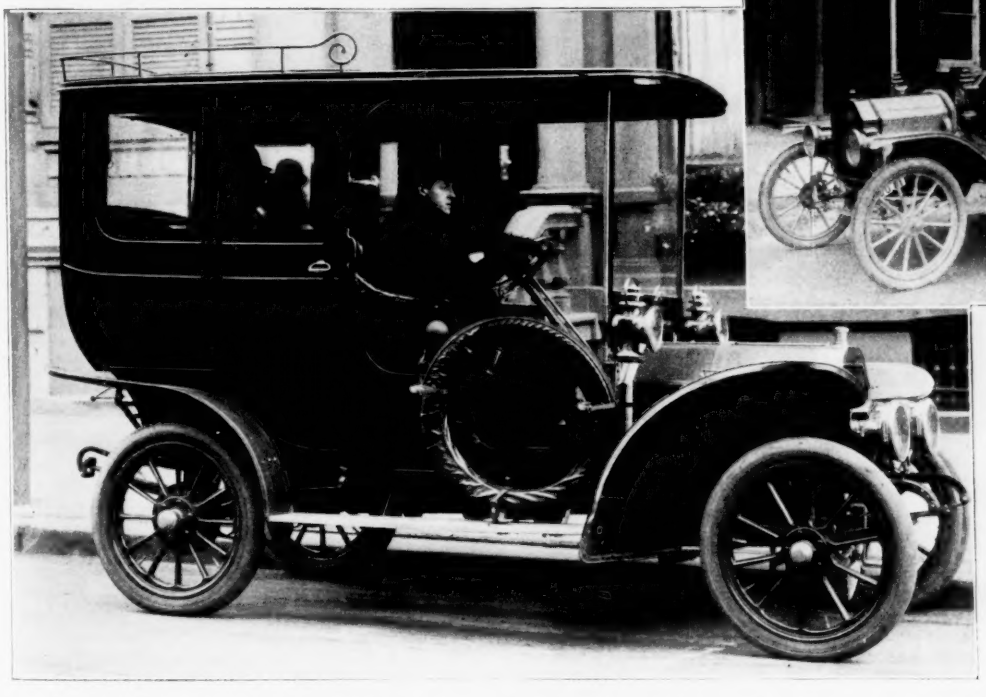


Fig. 4.—Car (117) used by Dr. James M. Anders since April, 1907, until the present. On the whole, the car has been quite satisfactory, although the body is perhaps too heavy for the chassis—a combination of conditions that is a bit hard on tires.

USES HIGH-WHEELER FOR WINTER WORK

At a cost of $7.35 I changed the single rumble seat to a double rumble by having the middle of the back sawed apart and a piece of board joined to the sawed ends, retaining the curve, and a new cushion placed on the seat and back on a new board.

With this car I have climbed, in high gear, steeper hills than the majority of the forty different cars owned in this place of about 10,000 inhabitants. One unnecessary expense was a top that I used the first day. Since I stored this car (123) I am using the old one (122) again, and will continue to do so until pleasant weather. I have discovered that there is less money invested in these two low-priced cars, for all the years' service and pleasure, than the same amount put in one high-priced car. The cost of upkeep is likewise less per mile in both than in a higher-priced car.

A. C. WENTZ, Hanover, Pa.

THE STEAM AND THE GASOLINE CAR FOR THE PHYSICIAN'S USE

HAVING lost my horse, and declaring that I would never own another one, in March, 1904, I bought a steam runabout (126 *). For seven months I did all my work and drove to neighboring cities when I pleased, covering, on an estimate, 5,000 to 6,000 miles, at a cost of $1 day. In other words, the expense was the same as that of the horse. As I understood my car thoroughly, I had no trouble whatever outside of occasional tire troubles.

The next two years I used the car, but kept less accurate account of expense. I think that a dollar a day would cover all. The car, being older, required more repairing, but as I didn't run nearly as many miles I kept down the expense.

The three seasons that I used my steamer taught me that for a physician's use steam was not entirely satisfactory. A steam car has to be kept alive all the time it is in use; so that, when making calls, the pilot light, which must burn all the time, gets badly on one's nerves; and as the car gets older, and the pilot light more cranky, I would often start on calls without the car rather than put up with the worry about the pilot while making the call. I understand that in later models of this make of car this trouble of the pilot light has been done away with.

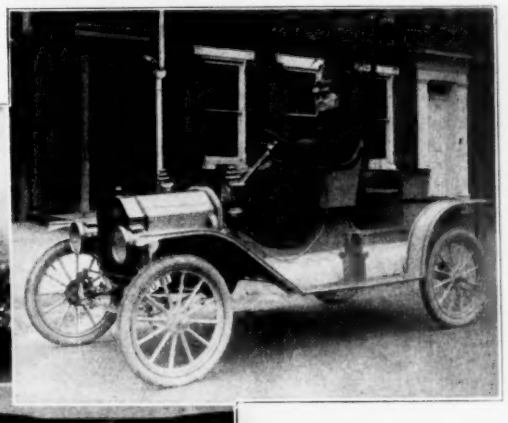


Fig. 5.—Dr. A. C. Wentz, Hanover, Pa., in his runabout (123 *).

Another trouble with a steam car is that unless it can be kept in a warm garage it is practically out of commission as soon as freezing weather comes. As I kept my car in a small shed that I built for the purpose, I had to use great care to draw out all the water at night, even disconnecting the steam gauge, as water gets trapped in it and freezing ruins it.

Because of these troubles, in the spring of 1907, I purchased a two-cylinder 12-horse-power gasoline runabout (127 *), and I must admit that this car has been more practical for my work. To be sure, it has given more trouble than the steamer and has twice been towed home (which never happened to the steamer). But on the whole I prefer the gasoline car for a physician.

Last spring I had the misfortune to break the crank-shaft, and it was over four months before I could persuade the makers to send me a new one. Why makers should be so loath to supply one with new parts when the old become broken or useless is more than I can understand; here is a good argument in favor of buying an automobile that is made near one's home.

HERBERT W. MANAHAN, M.D., Lawrence, Mass.

* For names of machines, see explanation in Editorial Department

THE CHOICE AND CARE OF AN AUTOMOBILE

Address Delivered by William E. Sharp, General Superintendent of the Armour Car Lines, Before the Englewood Branch of the Chicago Medical Society, at its Automobile Clinic,* held in Chicago, Feb. 1, 1910

WHAT I shall say will consist of reminiscences from my five years' experience driving a pleasure car (104) beginning with a "one lunger" (103)—and at the outset I have to say that I do not agree with the physicians in all cases, because when you get a "one lunger" you send him away to the mountains, while it was my experience that it was better to stay on a level road.

About a year ago I was appointed a member of a committee to investigate the subject of automobile trucks for commercial use, and through this investigation I acquired what little knowledge I have on the subject of designing an automobile. During our investigation we visited the most reputable manufactories of automobiles in this country, as well as some of those that have not, and will not have, a reputation.

At the Paris Exposition in 1900 France had the best exhibit of gas engines for automobile use, and the ingenuity displayed in design was a surprise to gas engine manufacturers; but during the last ten years the American automobile manufacturers have made wonderful progress, and to-day there can be no doubt that the American-made automobile is second to none; in fact, there is no need to go abroad to buy a car of the highest type and with the best appointments.

Fig. 6.—Dr. Adam H. Wright, Toronto, Canada, President of the Canadian Medical Association and Professor of Obstetrics in the University of Toronto. This photograph, taken Feb. 14, 1910, shows the car (107) in front of the house and office. It is a four-cylinder, thirty horse power car. There has been an unusual amount of snow in Toronto this season, there being on an average over one foot on the ground when this picture was taken. The car was not out of commission on account of snow for five minutes during the winter. The chauffeur was accustomed to horses all his life, and was a coachman in England for fifteen years. He came to Canada about three years ago because automobiles had become so common in England. He was Dr. Wright's coachman for about two years. When the horse was discharged and the car came, last September, he reluctantly took charge, soon learned to run it, has pretty well learned its mechanism, and now would not go back to horses on any account.

HOW TO SELECT A CAR

It does not follow, however, that anything in the shape of a gasoline tank mounted on wheels, making a hideous noise and giving forth an offensive smell, should properly be considered an automobile. Therefore, the first thing we will consider, as laymen, is the selection of a car. It is, of course, understood that it must be a good one. But how shall the average layman, who is not familiar with the automobile, knows nothing of its design or construction, answer this question? To which we reply: by purchasing from a reputable maker, one who is a manufacturer and not an assembler; one who has worked out all of the problems for himself, instead of copying from what others have done; one who is reliable, and who has a reputation and investment which make reasonably sure that he will still be in the business when your car gets old and becomes worn, needs repairs and an occasional new part; also, one who maintains his own branch houses, where you can deal directly with the manufacturer of your car; whose motto is, "A square deal, even in the automobile business."

Too often the average layman going out to buy a car looks only for the rated horse power, the wheel base, and the maximum speed that the car will make per hour, and completely ignores, or does not understand, the important points on which he should base his selection, which, in the first place, depend very much on the particular service to which the car will be put.

The car with the long wheel base makes the most desirable car for a country road, particularly rough roads. On the other hand, it is more difficult to maneuver in a crowded street. A heavy car is by all means the easiest riding car, and not much, if any, harder on the tires, providing, of course, that the tires have been proportioned to the weight of the car. On the other hand, a heavy car does not respond to the moves of the throttle as quickly, and it can hardly be expected that an engine, unless of size out of all proportion to the car, is going to accelerate a heavy mass as quickly as a light one. Again, the heavy car is not affected by small obstacles; it moves over the road more smoothly, and with uniform speed, and it is of itself a fly-wheel.

While it is fair to assume that the cost per running mile is greater for the heavy load than for the light one, this statement is subject to qualification, for with a given wind resistance the heavy car when under motion moves along with nearly the same power as the light one. This applies, of course, to level roads. Climbing hills the lighter car has somewhat the advantage; but also the disadvantage of being unable to stand the rack and strain of service. The very thing that gives the car weight also gives it strength.

ACCESSIBILITY OF ENGINE

Perhaps the most important point to be considered in selecting a car is accessibility of all parts, or, in other words, the ability to remove any one part of the car without disturbing all others. On this point the average salesman will disagree with you, having you understand that his particular make of car never needs to be dissembled, that nothing wears out, that no accident can possibly happen—a consummation devoutly to be wished, but one which can ne'er be hoped for.

One must be able to get into the crank case without disturbing the other parts, for the bearings will eventually wear and require adjustment. One must be able to dismount the magneto, or the circulating water pump, without being required to remove the radiator. The oiler must not be in the way of any of these operations. Not that the oiler is in itself complicated, but it has a great many attachments in the way of small pipes,

* A general discussion on the subject followed the reading of this paper and an abstract of this is presented at the end of the article.

which should always be tight and shipshape to insure perfect results. The transmission as a whole should be demountable without the necessity of disturbing any of the rest of the assembling, for transmissions are subject to accidents, and more often to flagrant abuse. The manner in which the gears are shifted may subject them to strains far beyond the endurance of any metal, hence the transmission should be located so that it is easy of access and may be entirely removed without disturbing any other parts.

The time required for the clutch to slow down after the release, so that the two gears about to be engaged are of the same speed, varies with different cars—not only different makes, but individual cars of the same make. All this must be learned by the driver. With a little experience, and having once learned it, there is no excuse for the slamming method of shifting gears, which attracts attention from the sidewalk, encourages profanity, and is a fruitful source of expense.

One of the first questions usually asked, and least understood, is, "What is the rated horse power of your car?" The answer is "30" or "40," or whatever may be the rated horse power of the car, and 40 seems to be a familiar term; but your question has not been answered. It is not so much a question of the size of the cylinders, or how much gas you explode, or with what force the explosion takes place. Power can be determined only by the amount of force delivered at the rear wheels, and let it be understood that in testing the power of an engine only the full capacity at any given speed is considered, it being obvious that under the throttle it is not a truth-teller, its performance in this instance not being in any way an index of its possibilities; hence, as an automobile is used but a fraction of its time to its full capacity, it is not expected that a testing load shall be the daily stunt of any car, for more than ninety per cent. of the time the car calls for less than half the rated power of its engine, and so for that ninety per cent. of the time one engine is about as good as another, but within the ten per cent. of the time remaining, the car undergoes difficulties which call for Herculean efforts, and unless successfully surmounted the other ninety per cent. is of little value.

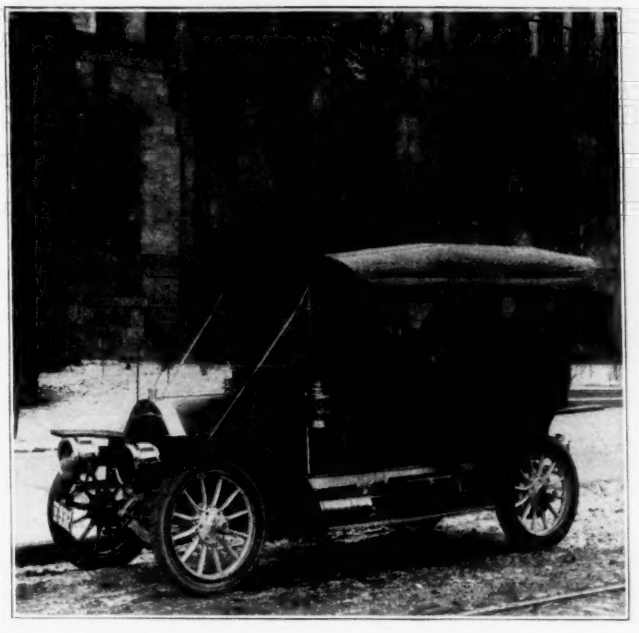


Fig. 7.—Forty horse-power machine (1744) used by Dr. John G. Clark, Philadelphia, Professor of Gynecology in the University of Pennsylvania. The picture was taken in front of the main entrance of the University Hospital.

All physicians know the immense reserve of the human power plant, seldom used, but necessary for its preservation in time of trial, and the good designer, ever responsive to the hints which Nature gives him, builds his car along liberal lines, with plenty of power, with weight enough to carry it, and so distributed that it will not be topheavy. To get plenty of power without increasing the dimensions of the engine beyond a reasonable limit, the good engineer takes into account these days of stress and trial, and makes the conditions under which the engine operates the basis for his work, and except in rare instances, when the car is run at its highest possible speed, which also calls for power, the times when its engine is running at its hardest load is when it is running also at its slowest speed. Therefore, those factors which fix the power of an engine at high speed are not the most important, but those which restrict its output at low speed and heavy explosions become of paramount importance.

The high speed engines are of necessity high compression engines, and their performance is not so good at low speed. I have in mind an engine developing 34 h. p. at 1,600 revolutions per minute, and 12 h. p. at 300 revolutions per minute. By raising the compression ten pounds, the h. p. at 1,600 is raised to 36½ or 37, but drops some 4 h. p. at 300. It is the part of a good engineer so to design his engine and his car that it will perform well when under its hardest load, which is in low speed.

The friction of the cylinder walls, then, is a larger factor than the inertia of the reciprocating parts, and any method of construction which will diminish this wall friction in a large degree is preferable. Also, the friction of the main bearings is a large factor under heavy explosions, a much larger factor than under the more rapidly recurring blows of the lighter explosions due to high speed. Hence, any design which lessens this friction is preferable.

POINTS ABOUT ENGINE CONSTRUCTION

It has been the belief of some engineers, and the fixed conviction of the layman, that rapid flame propagation is good for the development of power, a truth which, stated without qualification, may lead to great error, for if this were a truth unqualified, an instantaneous flame propagation would, of course, be better than one which was dragged out. Ergo, a spark plug in the head near the center of the charge, where the flame would be propagated but a short distance, would be the desirable construction. Well, it is desirable construction for high speeds, but at high speeds most any construction would be satisfactory, while at low speeds we have radically different conditions.

The time required to propagate a flame throughout the mass of gas in an ordinary automobile cylinder varies from 1/600 to 1/300 part of a second; during only 1/300 part of a second the crank has traveled when the car is doing its heavy work at speeds less than 20 miles an hour, about 15 degrees. If the propagation of the flame is shortened to 1/600 part of a second, the crank under the same circumstances has traveled approximately seven or eight degrees, and the full force of the explosion is expended on the crank at a time when it has almost no turning moment, and if the sides of the cylinder are not sufficiently cool to permit of proper lubrication the gas loses its pressure before the crank has reached that portion of the stroke where the piston pressure is most effective. If, however, there is a continued rise in the pressure up to the time the crank has passed 15 to 20 degrees of movement, the piston is then traveling at a good rate of speed, and the contracting effect, due to the cool cylinder walls, is much lessened, and we have a large value of turning moment. By setting the spark plug in a port to one side of the cylinder, and proportioning the distance so that under these hard loads the flame is propagated to reach its maximum when the crank has traveled through about 25 degrees, we have a much more sustained pressure on the piston and a more nearly continuous torque on the crank.

Now, then, if the cylinder is set tangent to a circle concentric with the crank shaft and of such diameter that the connecting rod is parallel with its axis, at the time the explosion has reached its highest value, then we have at that time no friction in the cylinder due to side thrust, whereas if the cylinder is radical to the crank shaft the friction on the cylinder walls reaches considerable value when the crank has passed through 25 degrees.

Furthermore, if the torque or turning moment of a crank is the product of the total pressure on the piston head multiplied by the sine of the angle of the crank and connecting rod and multiplied by the cosine of the angle of the connecting rod and piston, then the cylinder set tangent, or, as it is termed, the offset crank, will provide larger multiplying factors at nearly all points of the travel of the crank during the explosion stroke, and therefore provide a greater mechanical advantage.

The foregoing facts are admitted by all, but as a counter argument the increased angle of connecting rod to piston during the compression stroke is offered as a loss to compensate the mechanical advantages of the explosion stroke, all of which is admitted if the mean pressures on explosion and compression were the same, but they are not. If they were, the engine would not run. As a matter of fact, the explosion side has a value nearly 400 per cent. greater than that of the compression side, and if advantages and disadvantages preserve the same proportion, there remains a net gain due solely to mechanical advantage, and when it is considered that the friction due to side thrust is diminished about 50 per cent., the advantages of offset or tangent cylinders become apparent.

A standard diagram of the pressure in a cylinder will show for a radical cylinder of 4½ to 5 inches diameter about 800 pounds side thrust as a maximum on one side, and about 75 pounds side thrust as a maximum on the other; but when the cylinder is set tangent or offset, putting the circle of the radius half of the length of the crank, the values on each side reach a maximum of about 200 pounds, increasing the compression side by approximately 200 per cent., and reducing the explosion side about 75 per cent.

It is a mistake to assume that, because a cylinder is offset or set tangent, the effect of centers is eliminated. The explosions occur with relation to the centers in just exactly the same manner that they do with a radial cylinder, but by setting tangent one is enabled to prolong his flame propagation to a mechanical advantage, and also to the lessening of the friction, and at the same time utilize the advantage of the heat effect as with a radial cylinder with a more rapid flame propagation, and by delaying the flame propagation until the highest explosion value is reached after the crank has passed considerably over the center, the friction of the cylinders is not only reduced, but the impact on the bearings is very materially reduced.

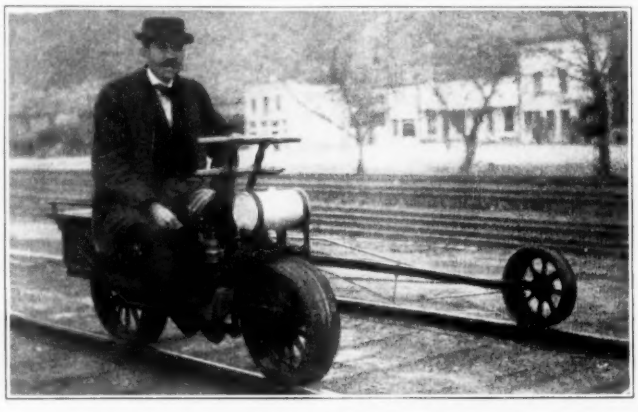


Fig. 8.—So far as roads go Dr. Philip Stephens of Caliente, Nev., has the advantage of us all. His road is perfectly hard and smooth and free from mud. He is district surgeon for a railroad in a valley one hundred miles long. He can reach practically all towns and ranches on the little car here shown. He uses it both for railroad and private work and can make thirty miles an hour.

The *reductio ad absurdum* can be applied to offsetting, as it can to everything else in engineering (a system, at the best, of compromises). A small offset is of no value; an offset too great increases the compression losses too much. There is a point for the most advantageous offset, which depends somewhat on the compression space, the explosion value, the normal speed of the engine, etc., but is approximately one-half the length of the crank.

CARE AND MAINTENANCE

The automobile, like any other piece of machinery, should be kept reasonably clean and fairly well lubricated. The successful operator will form the habit of entering the garage in the morning as he would enter an invalid room in the hospital. First, he takes in the whole situation at a glance, and then he sets about to make a careful and minute examination of all the working parts; beginning at the forward end of the car, he looks in his radiator to see that it is filled with water; next he should examine the gasoline storage tank to see that he has a full supply of gas. He should also examine his oiler to see that it is properly filled. Fortunately, the manufacturer, mindful of the frailty of humanity, has provided for automatic lubricating devices, which perform their work very satisfactorily, providing they are kept in perfect condition and you supply them with oil. With oil can and wrench in hand he next passes around the car, carefully looking over all of the working parts, dropping oil on the bearings that are not automatically lubricated, and seeing that the tires are properly inflated.

A few moments spent in this way in the garage each day will oftentimes prevent a breakdown or serious delay on the road.

TIRE TREATMENT

The reputable rubber manufacturers furnish a weight schedule which shows the weight to be carried on each tire. I have found in my experience that if these schedules of weights are carefully observed, and in case of doubt a heavier tire is applied than the manufacturer recommends, it is cheaper in the long run. Most of the manufacturers will guarantee their tires for five thousand miles, if made in one season, and in case of failure they will replace the tire, simply charging you for the mileage, but by buying tires of the proper size, in proportion to the weight of your car, you are reasonably certain of seven to ten thousand miles perfect service, without any tire trouble.

I do not favor applying smaller tires to the front wheel. I think it is better practice to buy the heavier tires and change them: that is, to buy new tires for the rear wheels and to move the old ones to the front wheels for the second year's service. In this way you always have new tires on your rear wheels, where there is the stress of traction.

Again, one should form the habit of keeping his tires clean, and the wise man will examine them each morning and remove the tacks, pins and pieces of wire that he has picked up during the previous day, which if not removed will sooner or later cause trouble.

Vulcanizing small cuts in the tires is rather a tedious job for the ordinary layman, and the rubber manufacturers will furnish a sponge rubber, with full directions, that can be used to seal up cuts in the outer covering, which expose the fabric. An hour's time once a week will keep your tires in perfect condition and insure the best of service.

Tires should be removed at least once a year and staybolts carefully examined, and the rims kept perfectly free from rust.

DISCUSSION*

Dr. H. R. Boettcher: I am not driving a gas car. I have eliminated all that trouble by purchasing an electric (160). I listened with a great deal of interest to Mr. Sharp's discussion and highly appreciate every bit of it, but I would like to know what physician who is going out to make a call late at night, will stop to look over his car, or clean it, examine the tires and all that sort of thing. He is going to turn it over and get away as quickly as possible. I have had quite a bit of experience with automobiles myself. I started in six years ago. I have owned three. I had a two-cylinder (162) and got to know that fairly well. I had a four-cylinder (163) that I thought gave me a great deal better service than the two-cylinder car, but after about four years of driving I purchased an electric car (160) and I think for a doctor an electric car

* This discussion took place following the reading of Mr. Sharp's paper at the meeting of the Englewood branch of Chicago Medical Society, at Englewood Hospital, February 1. Dr. M. W. Baco presided and the secretary was Dr. C. Hubart Lovewell.

is the only car. It is much easier to look after; you do not have to look after oil; you do not have to watch the gasoline and you have no spark trouble. I run the car into the barn, shove the plug in and it fills itself full. The only objection I have is that I have about the same trouble with the tires that I had with the gasoline cars. You cannot do away with the tire trouble. It is the biggest item in the automobile expense. If it has tires that will stand up all the time, the average car will go all the time. We aim to keep our cars well oiled. Of course, if we do not take care of our cars, that is our own fault. The car that will give the best service—the nice car, the clean car—is the electric car, and I am quite sure that all my friends who are using gas cars now will within a few years be driving electrics. You get into your car and start right off; you do not break your arms; you do not have to crank; it is a very simple matter to start it. It is easy to keep clean and is charged easily. I can drive sixty miles on a charge, and I do not believe there are many men who will drive more than sixty miles on the average trip. I have been driving through the snow banks, on rough roads and where it is hard to drive a car. It uses up a good deal of electricity, but so far as I am concerned I would not trade my electric for all the gas cars made, for city work. It costs about three cents per mile for electricity.

DR. E. C. MORTON: I have not missed a day this winter in my automobile (164). I do not have very long trips to make but find that I can get to a good many more places and even find time to take my friend, Dr. Boettcher out when his electric refuses to run. In the summer time I can make my calls and then go out to the club, which is four miles from town. I could not do this if I had to use horses. I am now on my third year with an automobile and if I had to go back to horses I think I would give up practicing medicine. The first years I practiced I kept three horses, and the expense of my car figured about the same for the first year as did the expense of two horses. At this time of year a horse tires quickly and I would rather take a street car than a horse. I always examine my machine to see whether it is all right, and I have yet to fall down on the road. I have always made my call and got back. You cannot bang a car around and have it work all right. If you are running on a rough road, look out for the bumps. You cannot cross a bad place at forty miles an hour. Keep your tires hard. A tire ought to be kept up to sixty-five. If the tire is kept up to seventy it will stand a great deal more wear.

Fig. 9.—Car (116) owned by Dr. D. Braden Kyle, of Philadelphia, in front of his residence. This car has rendered excellent service, has been driven over 40,000 miles and has never been in a repair shop.

DR. CARL LANGER: If anybody was afraid of an automobile I was that fellow. In fact, I was so afraid of a machine that I hung on to my old pair of horses until one of them actually lay down in the shafts. My friend, Dr. Bohart, after talking the matter over, finally said: "What you need is a fool-proof machine," so I did what everyone else advised me not to do and bought a second-hand one lunger (125). I want to tell you, gentlemen, that no money I have ever expended has given me so much pleasure and satisfaction as that has. I have owned the car now some eleven months, and during that time it has been out of commission but one day. During all of this winter the machine has never failed to respond and has been on the road from morning until night. The up-keep is no larger than the maintenance of the two horses, and the comfort is infinitely greater. I can do the same amount of work that I did with the team and still have two hours a day left in which to enjoy myself in any way that I see fit.

DR. W. H. BOHART: I have had some experience with the automobile, and to get that experience I have spent about all I could make. I started out two years ago with a two-cylinder car (165) and later bought another one of the same make. They were good little cars, but not large enough for my expanding views. Then I bought a large four-cylinder car (166) and that has turned out to be the saddest day of my life, so far as the automobile is concerned. I now have two cars, a four-cylinder (167) and a single-cylinder (168), and for real worth and reliability the single-cylinder car is ahead of anything that runs on four wheels, and I have run the gauntlet of the whole automobile business.

For my work, I prefer the little car to the big one. I consider the small engine and the small car the best for the physician. My small car has run about 50,000 miles. I cannot remember a time that the car did not go. It costs me practically nothing to run it, compared with the larger car. I can get 18 miles on one gallon of gasoline in the city, and on the road considerably more. Out on the road the big cars run past me all right, but it has been my experience that I generally catch up with them before the end of the journey. You cannot get the speed out of a small car, of course, that you can out of a four-cylinder car of high power. When I had my first big car, it used to be my delight to see how fast I could go. Now when I drive 18 miles an hour I think I am going pretty fast. I think that the tendency with automobile owners is to drive too fast, but I notice that after a man has driven several years, he usually cuts down his speed 60 or 70 per cent. Fast driving is one reason for the rapid wear of tires, and in regard to the tire question, I think it is the most important one for solution, and the one great fault with the automobile. The puncture is the bane of the physician's automobile existence. I like to ride in my big car and to take my family out in it, but for the physician's practical use, I think that the small car is far superior to the large car, being so much easier to handle, so much more economical, practical, and inexpensive, that there is no comparison at all.

DR. M. T. NAUGHTON: I have driven one car (169) for four years for about 60,000 miles. It is a four cylinder car with a 30 horse power engine. This car has never been in the machine shop. I have never had a man overhaul my engine. I have always repaired it myself. It has a 100 inch wheel base, is a five passenger car, and weighs 2,400 pounds.

As to the cost of up-keep, I get 7,000 miles out of a set of tires, which are 32x4. I keep my car in a private garage. It costs $4.50 garage rent, and 10 cents a gallon for gasoline. I get 13 miles out of a gallon, making short stops in the city. On long runs in a warm day I get from 6 to 18 miles. Lubricating oil costs 40 cents a gallon. I use 3 quarts for 100 miles; $1 worth of hard grease lasts a season. I have the car washed twice a week. The expenses for new parts, exclusive of tires, in four years, has been $70.

I am now starting on the fifth year with this car and think as well of it as I ever did. During the warm months I tour the surrounding country, on Sundays averaging from 125 to 150 miles on each trip. I have not yet had any trouble that I could not easily remedy. If a man is going to drive a motor car, the sooner he becomes master of the mechanical details of the situation the better he is off. If he does not understand the mechanism of his car it is liable to cause him lots of money and all kinds of annoyances. A good man on a medium-priced car will get more mileage and fun than a poor operator will on the highest priced car made. Having a family and not feeling that I can afford a runabout and a touring car at the same time, if I were going to buy a new car I would get the same size and make as my present one.

DR. CHARLES HADDEN PARKER: A man who owns a machine should be something of a mechanic and should have a little

repair shop. I take care of my car (170) myself and I can get out of trouble without assistance. One should have a little shop with a little lathe and when a casting or some part is broken be able to fix it up.

DR. CHARLES HENDERSON MILLER: From what I can learn it would be mere folly to argue against the use of an automobile for a doctor's work. I do not hear any of the men who have driven machines say they would care to go back to horses. My advice to a man thinking of using an automobile would be to buy one as quickly as he can afford to pay $1,000 for a machine but get a good one. If he has a family, I advise that he get one large enough to carry more than two passengers. It would be a good plan to get one that he can use as a coupé in the winter time, if he wishes, and convert into a tonneau in the summer time. Every doctor should have a book telling him how to take care of his car. Excessive power is neither desirable nor necessary. A maximum of 20 h. p. is sufficient if the weight of the car is not too great, and the greater the horse power the greater the weight of the machine. It is just as available on the road for hills and otherwise with the lighter power. The gasoline engine of this car should always be in front—never under the seat. It is a constant source of concern and requires a good deal of attention. I am not positively decided as to the best quality of oil to use. There are a number of different makes and grades. I am using

Fig. 10.—Runabout (124), office and residence of Dr. F. C. Ard, Plainfield, N. J. The coupé body was added to the car for protection from bad weather in winter. It does away with the necessity for fur coats and heavy clothing. It is removable for summer use, when the open body is replaced.

oil that costs about 20 cents a gallon. The cost of gasoline is practically nothing. A car of this kind will save at least 50 per cent. of the time of the physician using it, in other words, he will have half of his time for leisure and yet do the same amount of work.

There is a great deal to be said about the way a car is cared for to eliminate trouble. The first thing is to have the car properly tired. Good tires are money-saving investments. It is well to have a vulcanizing equipment so that when you see a hole working into the tire you can seal it up. The tires on my car have run seven thousand miles and I think they are good for several thousand miles more. I take care of the car myself. Regarding the maximum speed one should travel, I think there is a constant tendency to want to go faster than is necessary or safe; and the life of the car is shortened by fast driving. I am exceedingly well satisfied with my automobile (171), although I paid the price of learning how to run it in three years' use and misuse of this car's immediate predecessor.

DR. C. H. LOVEWELL, SR.: I do not own an auto and perhaps never will own one. I know a machine is a very fine thing, but you pay for it each month. I have owned in all six horses. In my first year in Chicago (1875) I kept my horse in the livery stable when business was fair, and when business was slack I put the rig in the coal shed, to go back again to the livery when business warranted. After a time I drove two horses and enjoyed driving them as well as any of you doctors enjoy your autos. The expense for the team was about $35 per month plus $20 per month for a stable man. I have owned no horse now for several years.

Now, I know just what it costs me to make a visit. I can make one call by trolley car at any time for ten cents in this section of the city. Sometimes I can make two or three calls for ten cents, and I am ready to start at any time during the twenty-four hours in fifteen minutes. I doubt whether there is a physician in Chicago who can make a visit for less than twenty-five cents in an automobile.

MR. W. E. SHARP: As to the relative merits of the assembled car and the car sold by the manufacturer, it is a well-known fact that the majority of the automobiles offered for sale are assembled cars, but it is a better business proposition to purchase direct from the manufacturer, as he has the benefit of experience in the various stages of development. If he is a reputable manufacturer you have his guarantee back of the car you purchase, and it is fair to assume that he has some pride in his business, and you are, therefore, assured of his cooperation and assistance in all of your troubles and in the repairs and up-keep. It is true that one of the best gas engines on the market, until very recently, was not owned or controlled by the automobile company, but was sold and used in various types of cars, but it does not follow that this would make a satisfactory car. All other parts as well as the engine have to be correctly proportioned, and for that reason I can not agree that you can get an assembled car that will give the service as well as the one you purchase direct from the manufacturer. I spent some time visiting the manufacturing plants of the automobile companies, and besides the quality of the material used, and the character of the work done, I was impressed with the importance of the organizations for inspecting and thoroughly testing all parts separately and collectively. I also visited manufacturing plants where only parts were being made, and it did not seem to me that the same care was used in inspecting and testing, possibly for the reason that they were made to sell.

As to the quality of material used in the cheap or moderate-priced car, as compared with the higher-priced machine, it is possible that the same grade of material is used, but it is just as important to have the proper quantity as it is to have the proper quality, and it seems reasonable that you would get a better material in the high-priced car, for the reason that the cost of labor for manufacturing and assembling would be no more than it would be for a lighter car, the same amount of labor being involved in each case, and there is less liability to crystallization of parts where they are made reasonably heavy.

The best oil is none too good. It should be used in the proper quantities—better too much than not enough, although the excessive use of oil will cause trouble. All manufacturers have tested oils to find which will give the best service with his particular type of engine, and that is about the best indicator.

The electric car, of course, is only supposed to be a boulevard car, but it seems to me it would answer the requirements of the physician in his daily round of calls, and he would have the comforts of the automobile without the care that it required in driving the gasoline car. It is a fact well known to all that a gasoline power plant requires attention, and the preparing of the car for its day's work is necessarily dirty work, in which hands become soiled—and it is otherwise objectionable. All of these features, of course, are removed when a man employs a chauffeur.

As to the advisability of purchasing a cheap or light car, it is a fact that there are several light cars on the market that would give considerable service on the boulevards, but it does not follow that a man is going to buy an automobile and stay on the boulevards. He will venture on the country roads, in the majority of cases with his car overloaded, and while he will possibly have satisfactory results with a light car at the beginning, the car is not built to stand any such service, and for that reason it seems to me inadvisable to buy a cheap, light touring car, and that it would be better and cheaper in the long run to buy a car designed and built for general purposes.

THE ADVANTAGES OF THE MOTOR-CYCLE

THE MOTOR-CYCLE IS THE KING OF THE ROAD

GETTING there and back again—in this the motor-cycle has the laugh at them all. My patients telephone me from the country, "Can't you come on your flying-machine, Doctor?" and, behold, I am at the bedside of the patient before the telephone receiver is hung up. That is the trouble with the motor-cycle; one gets the speed mania. On a dry ordinary dirt road, not too stony or uneven, one can travel at the rate of 30 to 40 miles an hour. This can't be said of the auto.

Look at the picture: I am called to see a patient in the neighboring village ten miles away. She had her first pain. I'll be there before she has the second one. When I come to the house of my patient I remove that duster, coat, cap and gloves and I'm presentable at any court. I left the dust behind me. Take notice of my scheme of combining the medicine-case, instrument case and sterilizer into one. It is made of copper and curved to fit the small of the back, where it rides most comfortably. It is fastened to the body with a leather strap which is easily detached from the case. It is 15 inches long, 3 inches wide, and 6 inches deep and if I need more room I can make use of the pockets of that coat.

MOTOR-CYCLE VS. AUTOMOBILE

	Motor-Cycle.	Automobile.
Classification.	Light weight, biped monorailer, great saver of power, wear and tear.	Heavy, clumsy, quadruped white elephant, 4 feet at 4 ever-changing levels, great loss of power, wear and tear.
Life.	Long-lived.	Subject to general debility early.
Vital organs.	Little predisposed to grave disorders.	Predisposed to expensive major operations at the machine shop hospital.
Heart.	In case of heart failure, disconnect engine, turn on foot power.	Call ambulance, chains and ropes; "dig up" and get the laugh.
Metabolism.	Normal absorption of oil and gasoline.	Deranged, fever high and drinks like a fish.
Feet (tires).	Long-lived, tetanus occasionally, use antitoxin early, prognosis good, $25 per pair.	Short-lived, susceptible to perforating ulcers and cancers; prognosis bad; $200 per set, price advancing.
First cost.	Sane.	Insane.
Second cost.	Normal.	An octopus monster.
Investment and Economy.	Good.	Poor.

Don't shy of the motor-cycle because it is a biped monorailer; that is the up-to-date feature and that is what makes the motor-cycle the king of the road. On a motor-cycle, your eyes are watching the road and your hands and feet are in constant relation with the mechanism of control and balance.

That is why you never lose presence of mind. That is what makes the motor-cycle safer than other vehicles. Being a monorailer, it gives you better choice and control of the road and better command of yourself and machine than can be enjoyed on any other vehicle that travels on terra firma. Then, too, this monorailer stirs up an enthusiasm that can be equaled only by flying in an aeroplane. It is enthusiasm that we all need. A good motor-cycle is no burden, and when it gets seriously sick on the road it can be wheeled or pedaled along as easily as a bicycle after the engine is disconnected. You need not call for a team of horses; you need no hydraulic jacks, no wrecking-crew. The ride on a motor-cycle is not to be compared to the rough, laborious and dusty ride on a bicycle.

My experience with a motor-cycle as a business proposition and recreation has been extremely satisfactory. It has proved a good investment, a money- and time-saver, and not until the automobile does away with its expensive tires and troubles, its complicated machinery, its great weight and its short life can it be a good investment for the country doctor.

I ride a twin-cylinder 6-horse-power chain-drive (159) in a hilly country with sand in the low places. The fine workmanship, the leverless grip control, the pneumatic ball-bearing spring fork, the economy of space and symmetry of design on this machine are superfine, and I have yet to find sand deep enough and a hill steep enough to kill the engine on my cycle.

Doctor, if you are not too old and crippled with rheumatism, buy a good motor-cycle and enjoy your trips into the country in a way you never dreamed of. Keep the horse for muddy roads and snow-drifts. F. C. DOLDER, M.D., St. Charles, Minn.

THE MOTOR-CYCLE

BEING disgusted with the trouble and expense incident to keeping horses, in the spring of 1909 I sold my teams and buggies and purchased a three-and-a-half horse-power single-cylinder motor-cycle (118) and used it entirely in my practice. During 1909 I drove it over 2,000 miles at about one cent per mile with a repair bill of only $1.85.

To say that I am pleased with the machine is expressing it very mildly. Calls that used to be hard work are now pleasure

Fig. 11.—Called to see a patient ten miles away. Dr. F. C. Dolder, St. Charles, Minn., and his motor-cycle (159).

trips and there is a fascination and recreation about the riding of a motor-cycle that I never found in any other sport. I can make my trips much quicker than with a team and I have more time in the office. I can go anywhere that there is a path at all, and, in case of emergency, can cross the prairie at a pace of 18 to 20 miles an hour, while on good roads I can easily run 30 to 40 miles an hour.

I always take entire care of my machine; I find it far less work, and work that I like better than caring for horses. When weather prevents the running of the motor-cycle I, of course, have to hire a team, but find that even so the cost the year around of using the motor-cycle and hiring horses when necessary is far less than keeping a team of my own and on the whole is many times more satisfactory.

I believe the wheel I have is as good as there is on the market, especially for a beginner, as it is very simple of construction and will stand a lot of abuse and hard use. For the coming year, though, I expect to exchange it for a four-cylinder (119) on account of the many improvements in it, and the desire for more power that becomes a craze with all motorists.

F. T. RUCKER, Mott, N. Dak.

AUTOMOBILE AMBULANCE SERVICE

AMBULANCE SERVICE AND ARRANGEMENTS FOR EMERGENCY WORK

SHORTLY after the new Jefferson Hospital was opened it became evident that we must supplant horse ambulances by power-driven vehicles. The location of the institution was such as to render stable facilities inconvenient, and the cost of contiguous ground for such purposes prohibitive. Manifestly it was impracticable to keep horses in any structure constituting a part of the hospital. As the cost of a garage outside the hospital would be the same as for a stable, it was deemed necessary to provide for housing the vehicle contiguous to or in the building. It was, therefore, decided to construct an ambulance marquise immediately contiguous to the sleeping-

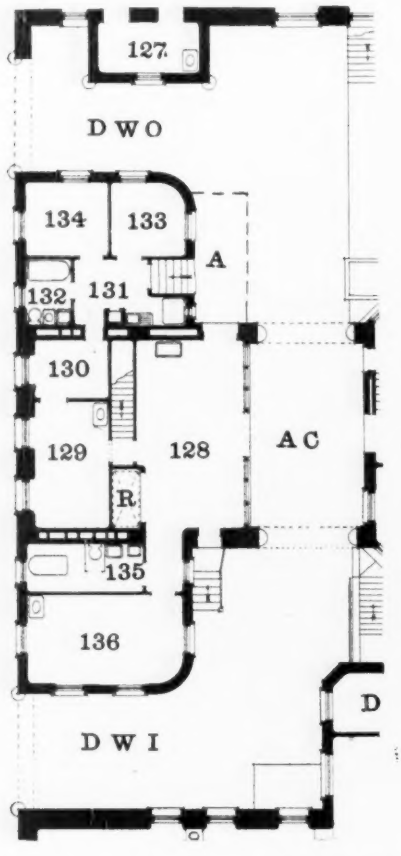


Fig. 12.—Floor plan of Emergency Department of the Jefferson Hospital, showing arrangement of rooms and accessibility of ambulance. Ambulance calls should be responded to in less than two minutes, day or night. D W I, driveway in; D W O, driveway out; A, ambulance enclosure; A C, ambulance court; 128, receiving-room into which all accident cases are primarily brought; 129, accident operating-room; 130, recovery room; 131, vestibule; 132, bath and toilet room for emergency intern; 133, sleeping-room for emergency intern; 134, sleeping-room for ambulance driver and emergency department orderly; 135, toilet and service room; 136, ward for the temporary detention of patients; R, elevator.

quarters of the intern on accident duty, and structurally a part of the receiving ward. The accompanying plan (Fig. A) shows how provision for housing the ambulance has been made. The top of the marquise and the sides extending downward from the top to a distance eight feet above the ground are of wire-glass set in a copper frame. The side and the end, extending from the glass to the ground, consist of heavy duck curtains weighted at the bottom and readily pulled upward by cords (Fig. B).

On one wall of the building is arranged a charging panel so that the ambulance may be charged at any time that it is not in service.

CHOICE OF MOTIVE POWER

Having provided suitable quarters for the ambulance ideally located for promptness of service, it was then necessary to decide what type of power-driven vehicle would be best adapted to our purposes. Gasoline and steam-driven machines possess many advantages, most conspicuous among which is speed and quite as important, endurance in long runs. The hospital, however, is situated in the central portion of the city, so that the ambulance rarely covers more than two or three miles at one trip, and only exceptionally calls for patients at any considerable distance from the hospital. In machines having gasoline either as the immediate or the productive source of power this inflammable and explosive substance must be kept conveniently stored, and the vehicle should constantly contain a charge sufficient for immediate service. The hospital is as fire-proof as human ingenuity could make such a structure, but the danger of fire in an ambulance court, while not in any way involving the building, was such that after mature deliberation it was decided that no vehicle the operation of which involved this danger could be purchased. There were two other objections to any gasoline-driven machine; one, trifling and negligible, was

Fig. 13.—Ambulance court, showing marquise with curtains, for housing electric ambulance.

the expense of maintaining satisfactory drivers, without which it could not be operated properly. The other objection was tire trouble. We were unfamiliar with any gasoline or steam machine working satisfactorily on solid tires. Pneumatic tires seem to be absolutely essential, and these are expensive; an ambulance cannot stop to make repairs, to change rims and tires, and consequently runs must be completed on deflated tires which insures destruction to inner tubes and frequently irreparable damage to shoes. On investigating electric ambulances it was found that solid tires were unobjectionable, although not possessing as easy riding qualities. The electric vehicle can be run by individuals totally unqualified for running gasoline machines. Although it is possible to obtain an electric ambulance so geared as to afford a speed exceeding fifteen miles an hour, the machine which was selected is so constructed that this speed cannot be exceeded. This action was based on the conviction that in the crowded section of the city, where 90 per cent. of our work is done, fifteen miles is as rapid as an ambulance should run.

The ambulance on which are based the statistics presented has now been in service over two years. Part of this time a horse ambulance did considerable of the work.

The wheel base is 100 inches, which is too short; 10 or even 20 inches longer would be better. The springs on the first vehicle are not satisfactory; those on the second have proved more acceptable.

COST OF RUNNING AMBULANCE

The first ambulance was placed in service Jan. 1, 1908. During the first year there were no repairs, and the total cost of the current for charging the storage battery was $29.92 approximately, or $2.50 per month. This made the operation of the vehicle a little less than one-tenth the cost of the horse ambulance during the same period. The next year, however, as a result of increased work and battery deterioration (the latter factor applying to part of the year only) the expense of charging was $45.60, or approximately $3.60 per month. In this year, however, were added several large items properly chargeable to maintenance. These include glass, $11.50; tires, $86.07; new battery, $452.38; and repairs $31, making a total of $580.95. The battery charge includes a new battery, and overhauling and restoring the old battery so that at the close of the second year a practically new battery, out of which should be obtained fifteen to eighteen months' usage, was available; the old battery had been cleaned, some new plates supplied and placed in such condition as to render it reasonable to suppose that it it good for at least six months. This makes the expense for the two years approximately $27.50 per month, which is, I judge, about the same as that of an ambulance using one horse; if there is any difference the expense of an electric vehicle is probably a little less than that of the horse ambulance. The tires which were used have splendid wearing qualities but are less resilient and consequently do not ride as well as some other makes.

Fig. 14.—Automobile ambulance (177) recently built for the City of Newark, N. J.

IMPROVEMENTS

The ambulance could be improved on, and in the new vehicle which has been in operation for several weeks, some improvements have been incorporated. The chain drive was a little noisy, but the main difficulty was that occasionally the chains ran off the sprockets, owing, of course, to imperfect adjustment. The windows were of glass; these we shall replace with celluloid. The new ambulance is shaft-driven and the clearance between battery-box and ground has been materially increased, an improvement which we regard as highly essential. The new ambulance possesses a longer wheel base. In the old vehicle the battery-box is so located as to prevent the wheels cutting under sufficiently to permit short turns; the new one is slightly better but still deficient in this respect. The old ambulance was guaranteed to make a thirty-five-mile run on average city streets; it came up to the guarantee. The manufacturers of the new vehicle guaranteed a run of fifty miles on a single battery charge; we think they promised too much. In the last five hundred runs I know of four instances in which the ambulance had to be towed in. One of these was an unusually long run (approximately 40 miles) over very hilly roads. In another instance the driver foolishly ran into a narrow alley in fairly heavy snow-drifts and used all the power in turning the wheels on a pavement so slippery that adequate friction could not be obtained. On still another occasion the front wheel was driven against an obstruction, the power kept on until eventually a short circuit occurred in the motor which consequently was burned out.

We have no desire to go back to horse-driven ambulances. I shall be glad to answer inquiries from those desiring information on the subject of automobile ambulances.

W. M. L. COPLIN, M.D., Philadelphia,
Medical Director of Jefferson Medical College Hospital.

AUTOMOBILE AMBULANCES

AUTOMOBILE ambulances are coming into general use. The city of Philadelphia uses several. The Philadelphia Bureau of Health has two automobile ambulances, one a gasoline car which between Sept. 24, 1909, and Dec. 31, 1909, responded to 397 calls, covering a distance of 3,667 miles; the other, an electric ambulance, between June 1, 1909, and Dec. 31, 1909, responded to 395 calls, covering a distance of 3,654 miles. The Philadelphia General Hospital has a steam automobile ambulance (Fig. 15).

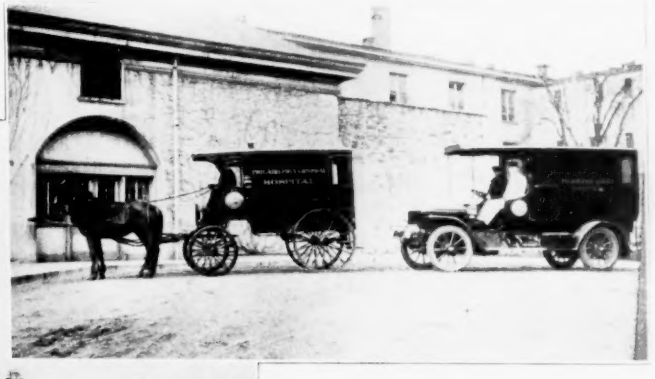


Fig. 15.—Steam automobile ambulance used by the Philadelphia General Hospital.

The Philadelphia Bureau of Charities has one 18 horse-power steamer ambulance, put in commission in 1906, and one 30 horse-power steamer, put in commission in 1908. These two machines answered 1,595 calls during the year 1909, covering a distance of 15,950 miles.

The Board of Health of the City of Newark, N. J., has used an automobile ambulance for a year, and a new machine (177, Fig. 14) recently received shows a number of interesting details. The wheel-base is 127 inches and the length of the body 6 feet 7 inches inside from front partition to tail gate. The width of the body is 40 inches at the bottom and 44¾ inches at the top. The bed for the patient is 6 feet 4 inches by 3 feet 2 inches and is made up on an ash frame 4¾ inches deep, upholstered in black leather, the inside of the bed being padded up to a point 18½ inches from the floor and the pads themselves being removable, for easier cleaning. Convenient use of the bed is procured by having it run on tracks.

Besides the physician's seat, which extends across the rear of the body, there is an emergency seat on the left rear side and a mahogany medicine case at the front partition. Easy riding is secured by pneumatic tires (179) and shock-absorbers, while quick repairs are provided for by demountable rims (180).

THE KIND OF A MOTOR-CAR TO CHOOSE

MERITS OF THE SINGLE-CYLINDER CAR

SINCE Dec. 1, 1908, I have been operating a single-cylinder, four-cycle, double side-chain drive runabout (142*) with the cylinder set vertically under the hood. In this car the number of working parts has been reduced to the fewest possible necessary to run a machine, which means few parts to get out of order. My car has been used every day, summer and winter, except during my vacation, and has never been in the shop for repairs over a few hours. The cost of keeping the car going has been at least $10 a month less than the cost of keeping a horse and the service a great deal better. For general physician's work, every day in the year, I believe the single-cylinder is by far the most practical car.

Fig. 16.—Dr. George P. Dale, Dayton, O., and his car (142). The tires (143*) look like pneumatics, but are not, and do not puncture.

I could not write of the success and low operating cost of the single-cylinder runabout without giving due credit to the tires I have been using. I am still using the original set of tires (143*), having covered between 12,000 and 15,000 miles, and they appear to be good for as many more miles. A physician cannot afford, for many reasons, to bother with the delays and vexations of pneumatic tires. With the tire which I use I do not know that there is such a thing as "tire trouble," as I have never experienced it. These tires look like pneumatic tires and are not solid, as they have air-spaces within them that give the resiliency of pneumatic tires.

With a single-cylinder engine and such tires, the physician can ask nothing better for an every-day, always ready automobile. GEORGE P. DALE, M.D., Dayton, Ohio.

THE LOW-PRICED MACHINE

PERMIT me to suggest that more attention should be given to low-priced machines. There appear to be many physicians who are yet waiting for the advent of a durable and reliable low-priced car. The status of the higher-priced cars is sufficiently well established, but the existence of an automobile costing from $500 to $800 which fills the requirements just mentioned seems to be in doubt.

Again, it is not so much the first cost or up-keep of a motor car that deters physicians of moderate incomes from investing as the apparent fact of their short life. A first-class driving outfit can be purchased for $500 or less and with ordinary care will do good service from five to ten years; but very few owners of machines will run one longer than a season or two, either selling or trading the old one in on a new car. Therefore, it appears that automobiling is still too expensive a game for the average physician. Is there an automobile on the market now costing from $500 to $800 which is both reliable and durable? Let us hope that the Automobile Number will answer the question. A. W. CLOUSE, Geneva, Pa.

DO NOT BUY A CHEAP CAR

SINCE 1902 I have owned and driven autos, including a one-cylinder 12 horse-power car (192), two two-cylinder 22 horse-power cars (193, 194), and a four-cylinder 30 horse-power machine (195). Before I bought my first car I kept two horses; after that I only have had one, which I felt I needed for the winter season when the snow is too deep and it is injurious to run an auto.

I have run my four-cylinder 30 horse-power car 7,000 miles since the time of purchase, May, 1909. I am pleased to say that my repair bill was $9.50, and this was for grinding valves and cleaning the carbon from the pistons and cylinder-heads. I had this done as a prophylactic more than a necessity,

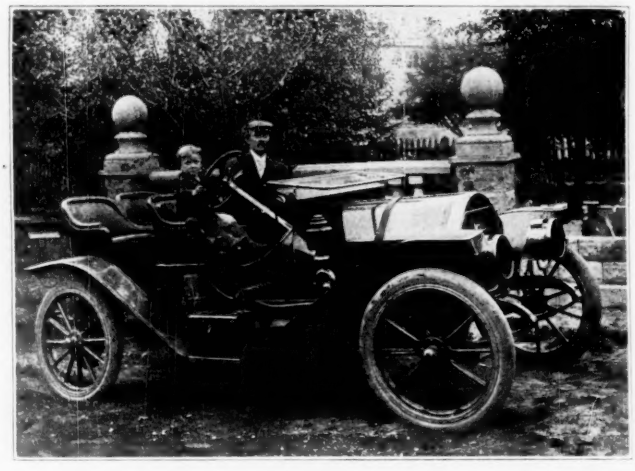


Fig. 17.—Dr. C. H. Eidam, Lawrence, Mass., and his son, in his thirty horse-power car (195).

thereby avoiding future trouble from overheating and premature ignition, which is sure to come later and in many cars before they reach the 7,000 mile mark.

I believe strongly in purchasing a four-cylinder car with plenty of horse-power with an arrangement to detach the rear seats when the machine is used for making calls. When I wish to take my family or some friends for a ride I can attach the rear seats in a few minutes and go for a pleasure trip.

I believe, however, that to receive the greatest value and pleasure out of a car one should buy a good one, that is, one built by a reliable manufacturer. One must be willing to pay a fair price (I should say between $1,500 and $1,800). I advise a four-cylinder car; then one should use plenty of gasoline, oil and water, keep the machine clean after going through the mud and let the rest alone; it is not well to tinker with one's car. The expense of running an auto is not more than that of a horse and carriage for the same number of miles traveled; in fact, I believe it is less. The pleasure derived from the auto, however, tempts one to go to the different beaches, mountains and other places 50 or 100 miles from home, and thus the auto naturally becomes the more expensive; but I believe it will keep anyone ten years younger, in better health and more able and willing to attend to his work, which well repays him for every dollar spent.

It is very important after purchasing a machine to have some one to explain the whole mechanism thoroughly; one must learn all its workings, and why one makes the different

* For names of machines, see explanation in Editorial Department.

moves in throwing in and out the clutch and in changing speeds. Thus one will be better able to know when something goes wrong and where to locate it and possibly be able to adjust it before greater damage is done and save time and unpleasant annoyance.

C. H. EIDAM, M.D., Lawrence, Mass.

CHOOSE A MODERATELY HEAVY CAR WITH A LONG WHEEL-BASE AND BIG WHEELS

MY OBSERVATION of automobiles began with their first appearance on Cleveland streets many years ago, but personal experience dates back about five years, when I bought a two-cylinder 18 h. p. touring car (175). My experience with that car I will not relate, because five years ago in motoring is ancient history, and because that machine was no more like the one I now drive than the Bungtown Accommodation resembles the Twentieth Century Limited.

GOING SLOWLY ON HIGH GEAR.

Last April I bought a 35 h. p. four-cylinder car (175) with baby tonneau or short coupled body. It is called a four-passenger car, but carries five comfortably, and can carry as many as will pile on. It has shaft drive, and selection type of transmission. It is said to be capable of a speed of 55 miles an hour. I never tried its speed limit but have driven it at forty miles an hour with five passengers up, which is fast enough for travel on any public highway by any one supposed to have regard for people's lives. This machine has three speeds forward and one reverse. While on the high speed one can slow down and creep along at the pace of a pedestrian, and thus, without changing gear, can pick his way through congested streets. It is claimed that this flexibility is due to an offset crankshaft and a straight line drive. I don't know why it does

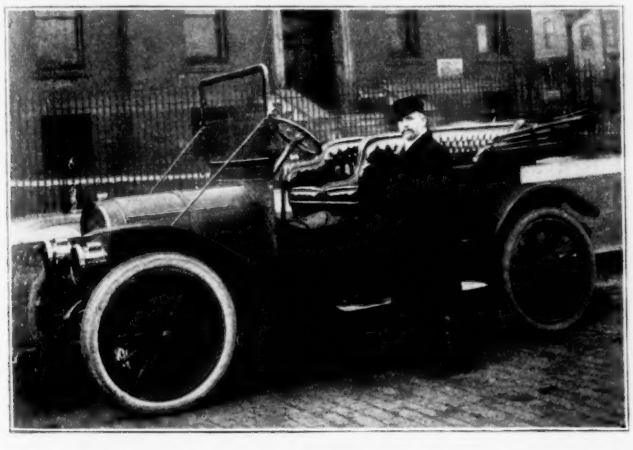


Fig. 18.—Dr. S. W. Kelley of Cleveland, Ohio, and his car (175).

so, but it does it. In my daily round this machine plays with 20 to 40 miles of Cleveland's badly paved streets. Some days, with country trips, two or three times this mileage must be covered in short hours.

ADVANTAGES OF LONG WHEEL-BASE

This machine has a wheel-base of 112 inches, and its pneumatic tires are 36 by 4 inches. I like this long wheel-base and the big wheels; and I like the short body, bringing the rear passengers forward of the rear wheels. I would not buy a short chassis or smaller wheels. Nor would I buy a light car. If I needed vibratory stimulation I would take it in some moderate and better regulated way than by riding daily in a light car. Nor do I think there is much, if anything, saved in tires by a light car that bobs about all over the road. I have driven this car more than six thousand miles on all but one of the original tires (176) and they appear good for more yet.

A GOOD WINTER CAR

This is a well-balanced car and will stick to the road and obey the wheel. I have driven it through the worst snow and ice of this wintry winter without skidding. Properly handled, these big wheels (which also insure plenty of clearance) and long wheel-base, will cross car tracks and turn at all angles on any street without skidding. The engine has run smoothly, quietly and powerfully.

SAMUEL W. KELLEY, M.D., Cleveland, Ohio.

THE DESIDERATA FOR A PRACTICAL CAR

MY ORIGINAL idea was to purchase a low-priced car to use until I could satisfy myself that an automobile would be practicable for me in particular. I obtained considerable service from my first car, a one-cylinder, 7 horse-power runabout (132). After using this car a year the main ideas in my mind were that I would never again purchase a chain-driven machine; that the body of the car should have protection by ample mud-guards, and a pan sufficiently large to keep the engine and transmission dry and clean. The car was not large enough to create a good appearance, and seemed overloaded with more than one passenger. My principal difficulties came from the transmission, owing to a poor design of high-speed clutch. The vibration of the single cylinder, though not hard on the occupant, was hard on the car, for lamps, mud-guards, bolts, screws, etc., were gradually shaken loose.

The cooling of the engine was effected by the thermo-siphon system, which I feared might give me much annoyance by a winter freeze-up. A 50 per cent. solution of denatured alcohol entirely obviated this danger.

My second purchase was a second-hand, 20 horse-power, two-cylinder, two-cycle runabout (133), taken with something to boot, in exchange for my first car. The two-cycle engine has given almost no trouble, but consumes too much gasoline, in spite of careful regulation of the carburetor. The one great trouble I have had has been a slipping of the high-speed clutch—an intolerable nuisance. In other respects my troubles have been few, and easily remedied. If a man is to care for his own car he had best buy early certain accessories, such as a set of extension wrenches, files, soldering irons, vice, etc., for making small repairs. In case of serious trouble I have had the best results by taking the defective mechanism apart and referring the difficulty directly to the maker. On the road an extra shoe and a couple of extra tubes and spark-plugs seem almost indispensable. To me it is the delay when one ought to be riding,

Fig. 19.—Dr. L. G. Beeley, Lawrence, Mass., in his second machine (133) described in his article.

and clean, rather than the preparation and care at the garage where one can afford to be unhurried and dirty that make one dissatisfied with a car. I believe that the auto is practicable for the physician, and that it will become more so, for the great demand and the result of experience must produce a machine of greater and greater perfection. If I were buying again to-day I should select a shaft-driven car of medium grade and standard make, the main features of which had been tried out by a couple of years' use. I should want tires amply large, and lay very special stress on the accessibility of motor and transmission, and adjustability of wearing parts.

L. G. BEELEY, M.D., Lawrence, Mass.

A CLUB OF PHYSICIAN AUTOMOBILISTS

THE PHYSICIANS' MOTOR CLUB OF PHILADELPHIA

PERHAPS the first organization of its kind in the country is the Physicians' Motor Club of Philadelphia, in whose organization I had an active part. I happen to be one of the two original physician motorists (172) of Philadelphia, having been through the process of evolution of the automobile since 1898, during which year I organized the Pennsylvania Automobile Club and conducted the first regular run ever held between Philadelphia and Atlantic City. At that time the participants numbered fourteen, almost the entire motoring community of Philadelphia and vicinity. Dr. J. Sylvester Deehan has been my co-worker since the inception of the organization, six months ago.

The purposes of the club are as follows: It seeks to influence sane legislation for automobilists in general and physicians in particular. The club has no desire to seek undue privileges for the members as drivers but to have privileges which should be extended to medical men when in the performance of their duty to the community. In many states, of which Pennsylvania is one, it is only by police indulgence that the fire-engine has the right of way to save property, and the patrol and ambulance the right of way to save life. Now the sum total of emergency work done by practicing physicians in a large city in twenty-four hours is far in excess of the emergency

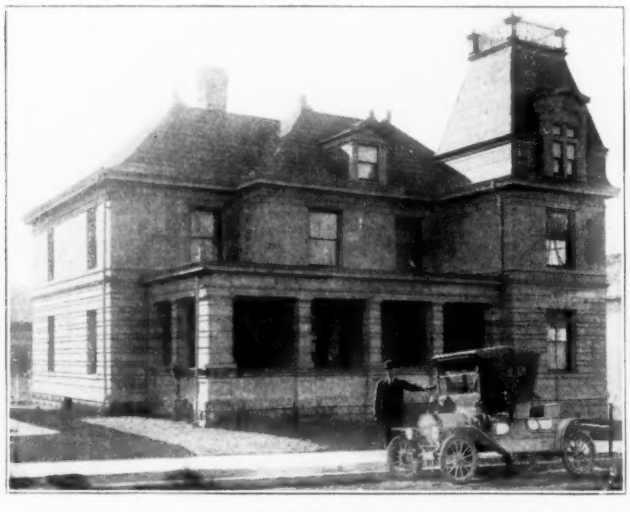


Fig. 20.—Dr. F. O. Wright, Wilmington, Ohio, and his machine (158), with his house and office in the background.

work done by ambulances in the same city during the same time. Of what service is the ambulance which rushes to pick up a patient to transport him to a hospital when the medical or surgical chief, on his way to administer the real service to the patient, is held up by an officer at a number of intersecting streets to allow a coal-cart or an ash-cart to pass? It is the intention of the Physicians' Motor Club of Philadelphia to have each member of the organization carry insignia on his car only when in use by the physician and to remove it or turn it at all other times. Each doctor is pledged not to exceed the legal speed limit when in the usual performance of his daily routine work. Each member of the club is to act as a committee of one to report a member who might be guilty of a constant infraction of the present law. When a name is handed in by a club member or when a member is repeatedly brought to the attention of the police department, he is requested to appear before the committee on law and ordinance who have the disposition of his case. By these stringent regulations, it is evident that any tendency to speed mania will soon succumb to active treatment.

There is a time-honored custom giving the doctor the courtesy of the road, and it is the firm belief of this organization that after there has been a sufficient demonstration of good faith on the part of the members, this custom may be made a law.

The social side of the club is also taken care of and runs are being arranged for during the coming season. These runs will have the effect of letting the men get acquainted with each other and with their machines. Many medical men have the desire to enjoy the country with its relaxing influence but are timid about venturing out alone—a characteristic of all medical men.

The commercial problem is being taken care of and each member has an opportunity afforded him to learn to run a car on an economical basis if he is the driver; or if he employs a chauffeur, he can buy supplies without the help of this "trusty."

Lectures are given by mechanical men from time to time on the "A B C" of the motor car. The etiology, clinical course and treatment of all acute motor and gear diseases are discussed. The preventive treatment of mechanical and tire troubles are thrashed out; and in every way the member is placed in a position which makes him master of the motor car which has become part of his business outfit.

The club, as an organization, takes no part in the buying of supplies or sundries, but arrangements have been perfected by which a member can buy all the necessaries for a motor car at the regular wholesale figure. He is also taken care of when purchasing a new car.

It is the purpose of the club to encourage the formation of similar organizations throughout the country with the ultimate purpose of an affiliation of the separate club; for "in union there is strength." A series of horn signals to be used by moving motor vehicles is being compiled, the purpose being to have them used in a manner similar to those used by vessels, in this way giving notice to pedestrians and to other vehicles, which will minimize the number of accidents and prevent many collisions.

S. Leon Gans, M.D., Philadelphia.

A LIGHT MACHINE WITH PLENTY OF POWER

FROM my experience I find a light machine with lots of power is what is needed. I have bought a 20 horse-power car (208) with pneumatic tires; it has 4 cylinders and weighs 1,100 pounds. The main objection to the solid-tire machine is the slowness. A busy man cannot spare the time which the solid-tire car requires; and a pneumatic will go when any machine ought to go. I find that my car does not consume half as much gasoline and oil as did the other machine. My work is all in the country and I find it more convenient and profitable to hire a team when the automobile cannot make the trip. I would advise a prospective buyer to get a good machine, the best his pocketbook will allow. I made a mistake in getting the high wheeler and cannot recommend it for a physician's use.

C. O. Nelms, M.D., Herscher, Ill.

THE MOTOR CAR BOTH A LUXURY AND A NECESSITY

MY MACHINE (158), purchased last April, has been both a luxury and a necessity. It can easily do the work of three horses, and its use has enabled me to take pleasure trips that would have otherwise been impossible. Comparisons are no longer odious, given a good machine, the owner familiar with its mechanism, and willing to soil his hands occasionally, to make needed adjustments and repairs. Any one who listens to the agent's story that his particular machine is "fool-proof" will be sorely disappointed.

The physician's machine should have 32 by 3½ inch wheels, base 100 inches, water-cooled four-cylinder *en bloc*, not less than 20 horse-power with the elimination of all unnecessary weight. Avoidance of "speed-mania" will add years to the life of the machine.

F. O. Wright, M.D., Wilmington, O.

AUTOS IN EVERY PART OF THE COUNTRY

AUTOMOBILES IN WYOMING

FROM 1902 to 1906 I practiced medicine in the Carolinas. On account of the nature of the territory, I confined myself entirely to horses, for automobiles had not then reached their present stage of efficiency. Even now, I doubt whether a machine would be practicable there. Certainly it could not be used exclusively, for off from the few main thoroughfares that have been macadamized, the frequent rains combine with the red clay soil to form a sticky mud, hub-deep for a third of the year.

Early in 1907 I sought health for my family in the "golden west." We traveled for some months in several of the Western states, but chiefly in Colorado. In that state we used an automobile to a considerable extent, and found the roads excellent, and an automobile entirely satisfactory.

In Wyoming we found climatic conditions ideal for our purposes. I found a suitable location in Wheatland, a town of 1,500, the center of a large territory. The radius of my practice is about a hundred miles, so that the question of a method of transportation quickly became paramount. In the early part of 1908 I was using six horses to do my work. It was then that I decided to try an automobile.

My knowledge of automobiles was exceedingly limited, but I have a liking for mechanics and some skill along that line. In Denver I purchased a car which a chauffeur ran with me through the country to Wheatland, but even his skill could not hide its two main defects, lack of road clearance and deficient horse-power.

For the summer I disposed of my horses and during that time my troubles were legion. I cannot remember that I ever ran my machine for one whole week without having enough trouble to last a man six months. Presently I was forced to purchase two horses, as my livery bills were enormous. I used the machine about town and on selected trips, when it seemed to be in the notion of running (I say "notion," for that auto appeared as animate and perverse as a balky horse). Something was always going wrong, and the machine has cost me $50 a month since I have used it. During the winter I have abandoned it entirely, going back to horses, and have been more comfortable in my mind if not in body. I have not given up using an automobile, however, for since making a thorough investigation, I have decided that hitherto I have owned a junk wagon and not an automobile.

I recently purchased in Denver a four-cylinder, 35 horse-power car (137), equipped with roadster body; and I am satisfied that this one will do what the other one did not. Still, in this territory there are certain trips that it is useless to undertake with the auto. Very often the road for 50 miles will be admirable, and then one comes to an unbridged stream, a gulch or a sand-draw that is impassable, and the nearest ranch-house may be from 10 to 30 miles away. In this connection, let me say that I would not recommend an automobile to any man in this country who was not himself something of a mechanic. Often, my troubles have occurred when I was twenty miles from help, and I would have been in an embarrassing predicament, could I not have done my own repairing.

I do not see that a machine has greatly increased my income or that it is in itself much of a saving. At least two horses are a necessity all the time, and during the three bitterest winter months horses alone can be depended on. Still, during the summer, it saves the busy man much valuable time, and one machine can do the work of six horses. Moreover, in this country, where help is scarce, the busy physician is saved time in his farmyard as well as on the road. Where a hostler is not to be had it takes a good deal of one man's time to look after six horses and their road equipment. Also it is a satisfaction to patients as well as to oneself to have the doctor within easy reach in case of emergency. The rest and relaxation, too, in driving a machine, is not a factor to be despised by a busy man. Nothing so quickly brushes from your mind the worry of your cases as the ribbon of road before you and the rush of wind in your face.

For a year my machine was the only one in town, but now there are twelve. Of these, only four have stood the test of our rather peculiar conditions: three 35 horse-power cars (138) and one 45 horse-power (139). The high-wheeled machines have not proved themselves here, nor has anything except a low-wheeled gasoline car. From my experience I would advise a medium-priced, medium-weight roadster, with particular attention given to road-clearance and hill-climbing ability, and with power enough to plow through deep sand and face the heavy winds of our breezy springs.

F. W. PHIFER, M.D., Wheatland, Wyo.

THE AUTOMOBILE IN THE MOUNTAINS

BEFORE deciding what kind of a motor car he is going to buy, the physician should take into consideration the condition of the roads in his neighborhood and whether he intends to use the machine all the year round or only during good weather. I have had five years of experience with the automobile and so far as I know am the only physician in central West Virginia who uses one in his practice. Our roads in this part of the state are very poor, even at their best, and during the winter months they get almost impassible for all wheeled vehicles. Until last September I used a low-wheeled runabout (183) which made good only during the summer season. I had much trouble with the pneumatic tire.

Fig. 21.—Dr. Beer climbing a "stiff" grade through West Virginia mud in his motor buggy (184).

The first of last September I bought a 20-horse-power friction-drive motor-buggy (184), which has 74-inch wheel-base and 38-inch wheels shod with 1⅜ solid tires, and is solidly built throughout. It has given me good satisfaction. I have run it every day since that time and it has not failed to go over the roads, no matter how steep the hills nor how deep the mud or snow. My expense has been about 3 cents per mile, counting everything. In my opinion there is no automobile made that can beat a good motor buggy for all-the-year-round hard usage such as vehicles receive in this part of the country. My machine rides as easy or easier than any low-wheeled pneumatic. It makes some noise, it is true, but that is nothing compared with the noise made by the owner of a pneumatic when he has a puncture some dark rainy night on a muddy road with a case of renal colic waiting at the other end of the road.

OSCAR B. BEER, M.D., Buckhannon, W. Va.

THE AUTO IN NORTH DAKOTA

IN THE language of our Methodist friends, my faith in the auto "hath the gift of continuance." Thirteen years ago my horses went into the discard and I have depended on the auto for transportation since then with yearly improvement in results. For the past three years, summer and winter, night or day, rain or snow, my auto has done my work within the city without fail. In fact, its limitations are becoming more and more narrowed yearly. It has now reached such a stage of development that it has long since ceased to be a toy or even a luxury, but has taken its place among the necessities. All standard makes of autos are now built to run and any one of these will give satisfactory service. In accordance with my intention expressed in last year's article, early in the spring of 1909 I purchased a two-cylinder roadster (185) with 32-inch wheels and regard it as a model car for service such as ours. This winter I have installed a coupé top and am now quite independent of the elements. The cold weather starting device before reported (THE JOURNAL, March 6, 1910, lii, 830) continues to be a success. My car stood out the other day several hours with a temperature 27 below and it was off at the first full turn of the crank. My longest single run in answer to a professional call during the year was 108 miles, made in four and three-quarter hours. While I find the auto so necessary in business that I would not be without one for many times its cost, it is in the way of recreation that I value it most. Two years ago I purchased a two-cylinder five-passenger touring car (185) and can say that it has been a never-ending source of pleasure. Its up-keep for the two years aside from tire troubles has been just $1 and it has been in constant commission. In summer when the roads are in good condition on Sunday afternoons this car is almost invariably driven from 50 to 100 miles and our delightful long summer evenings generally utilized in the same manner. On returning from a long and satisfying ride I am apt to think it will suffice for a day or two at least, but the next evening my hands itch for the wheel and my ears long for the purr of the motor and the car affords relief. Possibly I am overdoing the matter, but I enjoy it.

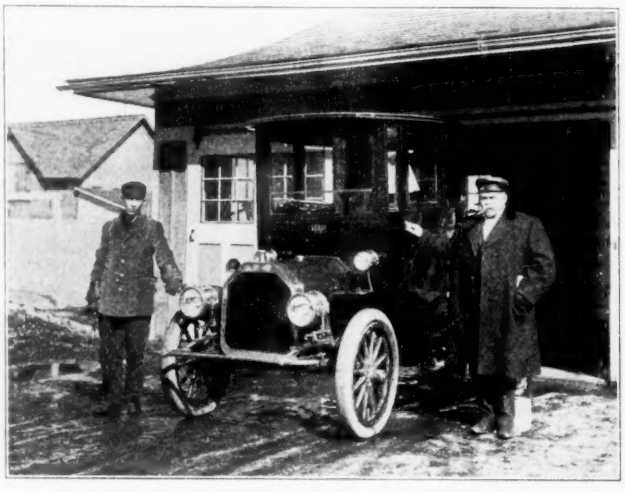


Fig. 22.—A North Dakota physician's car. Dr. H. M. Wheeler and his roadster (185).

H. M. WHEELER, Grand Forks, N. Dak.

A GOOD BUSINESS PROPOSITION IN MASSACHUSETTS

WHEN I desired to buy an automobile I determined to make as small an outlay as possible, and yet have the car good enough to make the experiment of value in determining whether the pleasure derived and time saved by the use of the automobile justified the cost. I expected to be my own chauffeur and to keep the car in my barn. In June, 1908, I purchased a four-cylinder roadster (134). I have used it ever since, chiefly over city streets in poor repair, and have been abundantly satisfied with the result. Like many another, I dislike to think of driving a horse.

It has been possible to use the car regularly about nine months in the year and at intervals during the remaining three months; fresh, deep snow being the only serious obstacle to operation.

Though no accurate account has been kept, I am satisfied that in running expense it has actually cost somewhat more than the keep of one horse ($25 per month at livery stable), yet considerably less than would be required for two horses; also that, mileage considered, the car was little, if at all, more expensive than one horse and carriage.

Comparative freedom from trouble has been accomplished by treating the car decently in driving it and by abstaining from experimenting with the mechanism in any, even the slightest degree. At first the car was looked over by a competent mechanic every two or three weeks, to see whether all was in order. After that when anything wrong appeared the same mechanic made the adjustment—my part being simply to put in gasoline, oil and water. Practically the only embarrassments were due to tires, and these were not frequent or serious.

Judging from my own experience, and considering a car as a business proposition simply, i. e., for use in professional work, it is my belief that cars of this type are the most practical for the average physician, on account of low first cost, low cost of maintenance, ease of management, and ready salability if a change is desired. For touring, a larger car would be preferred.

With this in mind I have this year exchanged my car for a demi-tonneau detachable (135). If this car in its somewhat larger field gives as much in return for the money as did my little last year's car I shall be perfectly satisfied.

F. D. MCALLISTER, M.D., Lawrence, Mass.

ON THE SANDY ROADS OF SOUTH CAROLINA

FOR TEN years I have owned an automobile, driving first a one-cylinder steam machine (128), then a two-cylinder machine (129), and now I am the owner of a four-cylinder (130). My two-cylinder car (129) I have used for four years and about four months. In that time I traveled in that one car over 30,000 miles. It cost me on an average not more than $15 a month. I have the sandy roads of South Carolina to travel on; also I have to cross the branches (or brooks as they are known in the North), which are hard on the tires and in rainy weather get in the way of the carburetor.

I was never towed home in this car; my distances have been as far as 60 miles, and only once when I got into a deep brook did I ever require any artificial help to move my automobile, and I have never had any driver other than myself.

Of course, I have my man clean my car and fill the tanks, but he never puts his hands on any part of the machinery to adjust it without my presence.

It would be impossible for me, after these years, to do without a machine. After trying all the tires, I believe, made, there is no tire, in my opinion, can compare with the tire which I now use (131). A doctor wants a light weight car; the principle of my last machine is the right principle to give light weight.

One should never economize in oil or the quality of oil; it is cheapest to buy the highest-priced and the most efficient and use it always in excess. No matter what other people say, an excess of oil will save the machinery. That is the only reason that I have had such a low cost and so little trouble.

The original cost to me of this machine was $1,100, and on sale in the fifth year I was allowed $350. No horse or set of horses, in the extreme heat in which I went on my trips, could have equaled the amount of work, for this expenditure of money.

WALTER CHEYNE, Sumter, S. C.

SOMETHING ABOUT GARAGES

THE GARAGE PROBLEM

MY GARAGE had to be fitted into an angle of my residence at the rear. This gave me a space of 12 by 10 feet and made the side of the house even with the front of the garage. This, of course, does not give me much space except for the car (101); yet on one side, under the windows, I have a small work-stand with drawers.

The floor is covered with cement, and, as the sewer happened to be under that part, I had a drain installed at small cost. This makes it always easy to wash the car and get rid of the water, as the floor is slightly inclined toward the drain; thus no oil or grease will accumulate on the floor.

My residence forms practically two sides of the garage except for the door leading out from the garage onto the step into the entry. There are two full-sized windows on the east side, giving plenty of light. The roof is slanting and the heat comes from the furnace, while a hole in the foundation allows the cold air to escape into the cellar.

The temperature has been about 50 all winter and the car is always ready to make a trip, night or day. The night work alone makes a car kept at one's residence a fine thing, as one can often make a night visit while one might otherwise be still waiting for a horse from a livery stable. This extra sleep helps out on the next day's work.

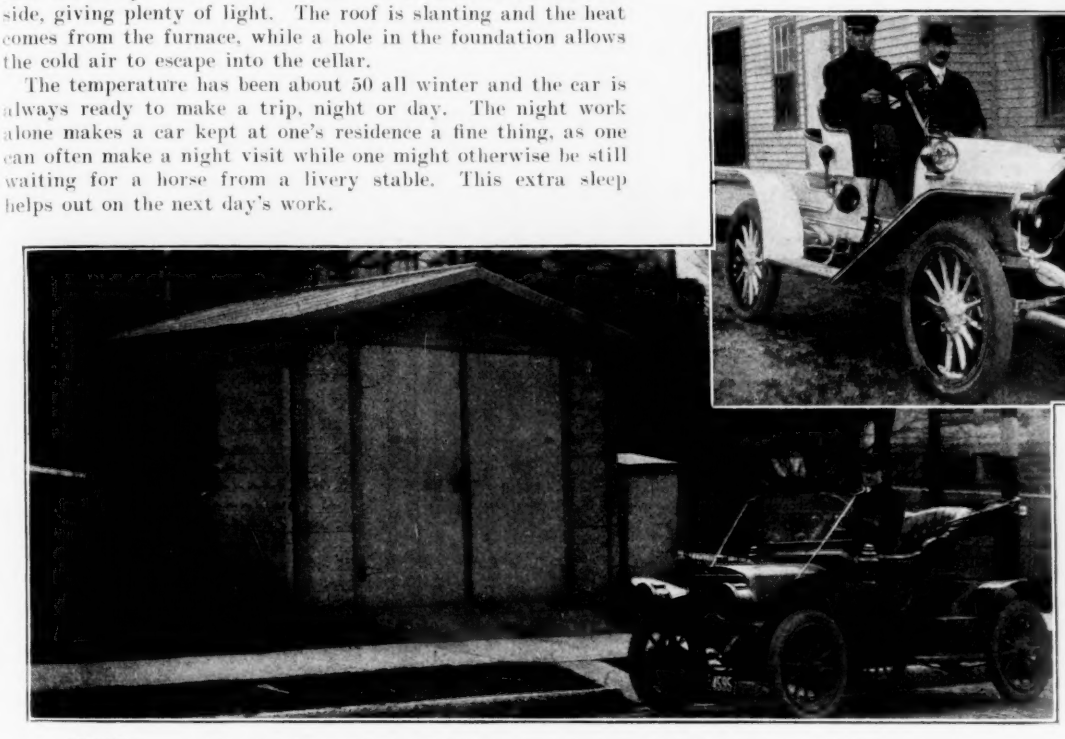


Fig. 23.—Garage and runabout (141) of Dr. Moses Salzer, Cincinnati.

During my first year I experimented with a 60-gallon gasoline tank, kept in a small shed on the edge of my lot, but one unpleasant experience persuaded me to buy gasoline from the dealer. My caretaker tried to fill the car at night by lantern light, with the usual result—a fire.

I have also tried patent acetylene generators. They froze up in the winter, or the water did not feed properly when needed. I am now using a gas tank, but my next car will be fitted with electric lights, which I believe is the solution of the light problem.

A. P. OVERGAARD, M.D., Fremont, Neb.

THE ACTUAL COST OF RUNNING AN AUTO

WHEN in the fall of 1908 I was considering the purchase of a machine I was astounded at the ignorance on the part of physicians and others in regard to the cost of running a machine. No one could give me any accurate figures; all was guesswork. The "guesses" varied from $10 to $150 per month. Some based their conclusions on accurate accounts which they had kept for at least two months; others, on their check-books and receipt-files, etc., but no one had kept an accurate record extending over the period of a year or more. It was therefore with a great deal of misgiving that in November, 1908, I purchased a second-hand runabout (141), which was almost new, having been used only three months.

CATALOGUE WEIGHTS NOT RELIABLE

The machine is rated as a 20-horse-power car, although its cylinders, of which there are four, measure 4 by 4. The car is catalogued as weighing 1,600 pounds, but its actual weight is 2,300 pounds. This fact and also the comparatively small tires (30 by 3½) may account for the large tire expense. I would advise prospective purchasers not to rely too much on catalogue weight or other statements.

From the very first day I have kept an accurate record of what it has cost me to run my machine. For the first five months I kept it in a public garage at a cost of $12.50 per month. Since then I have kept it in my own garage, which has reduced my operating expenses somewhat.

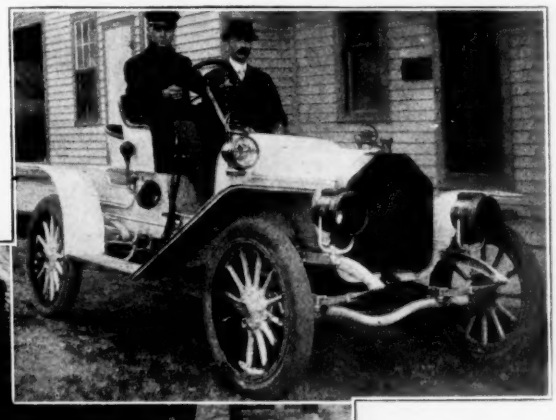


Fig. 24.—The car (120) driven by Dr. H. A. Schneider, Jordan, Minn., in front of his office.

GARAGE A GOOD ECONOMY

The garage (see illustration), built for me by an architect of this city, has a framework of wood covered with sheet metal, making it almost fireproof. The floor is of wood with a drain running down the center so constructed that water and oil drain off immediately. It measures 12 by 14 feet by 10 feet high at its highest point and is portable, in that it can be jacked up, rolled onto a truck and moved as a whole. The cost of this garage (which has already paid for itself), the machine and its equipment, has not been charged to operating expenses but to original investment.

OPERATING EXPENSES FOR ONE YEAR—NOVEMBER 1908, TO NOVEMBER, 1909

	Yearly.	Monthly.
Tires	$219.79	$18.32
Gasoline and lubricants	103.71	8.64
Ignition system (batteries)	13.04	1.08
Repairs	61.44	5.12
Storage and cleaning	75.08	6.26
Sundries	57.58	4.80
Total	$530.64	$44.22

Average cost per mile, .073

As to the actual operating expenses, I am tabulating above, under various subdivisions, what it cost me to run my machine the first year. In this connection I wish to state that no one but myself has run my machine and that all minor repairs I have made myself.

No comment on these figures is necessary except to state that Cincinnati, on account of its many hills and poor streets, is hard on automobiles. Of course, strictly speaking, the depreciation in value of the machine and its equipment ought to be charged up to operating expenses, but no one can tell as yet what is the life of a modern machine. I know, in the case of my own machine, that it is working as well and to all appearances is as good as the day I bought it, fifteen months ago.

To show how fallacious are estimates based on a few months' operating expenses, my accounts show that during June, July and August, 1909, I spent a total of $64.14, or about $21.50 a month, which is less than one-half of the average monthly expense based on one year's total.

Moses Salzer, M.D., Cincinnati.

ECONOMY IN THE USE OF THE AUTOMOBILE

FOR EIGHT years I used a team in my practice at an average cost of about $20 per month. June 2, 1909, I disposed of my team and purchased a 4-cylinder 22-horsepower runabout (120) and used it continuously until December 1. Since that time we have had exceptionally deep snow, making country roads impassable for a machine and so I have to depend on livery teams for country trips. During the six months I used my car I found it very satisfactory, exceeding all my expectations. I never had to be towed into town, although I had to get a farmer with a team to pull me out of mud-holes twice owing to my own neglect to put on the mud-chains before getting into the mud-holes. A few figures will tell the story.

The cost of the car and equipment was $1,076.95. I drove my car about 5,200 miles, used 287 gallons of gasoline, running 15 to 25 miles on 1 gallon, depending on the condition of the road and load carried. The total expense was $107.75, or $18 per month, less than 3 cents per mile. I had only two tire punctures, which were easily repaired and with little delay. After one of them I came home, 7 miles, in thirty minutes "on the rim," but that is poor policy, as it is very likely to cause dents and irregularities in the rim, making it difficult to remove or replace the tires. Compared with a team a car like mine has the following advantages:

1. It saves time by its greater speed; it is not necessary to tie or blanket it or to stop for feed or rest, as the machine can be fed sufficient gasoline and oil in five minutes to run 100 miles or more.

2. The machine gives more pleasure. Arduous country work is changed into pleasant "joy rides."

3. It is safer, if one drives carefully, as a machine is "not afraid of the cars" and will not shy at dogs or pigs.

4. It gives cheaper running expenses, as there are no expenses when not in use.

The disadvantages are, first, that the first cost is greater for a good, serviceable car, and, second, that about three to four months in the year in our territory it cannot be used on account of the poor roads.

I should advise a prospective purchaser to select a car with a three-speed transmission, as it is very convenient to drop to the intermediate speed on steep hills, in mud, and on very rough stretches of road. The first speed is too slow and also easily overheats the engine when used continuously for a long distance.

It is best to buy from one's home dealer, as he will be more likely to look after one's best interests in the line of supplies, extras, etc., and it is also convenient to have some one near in case one should wish to register a kick.

Study your car carefully and you will soon be able to diagnose its ailments readily (for it certainly will have a few), and, as in the practice of medicine, once a correct diagnosis is made the treatment is easily and satisfactorily applied. Subscribe for a practical auto journal; you will find it useful and interesting.

H. A. Schneider, M.D., Jordan, Minn.

AN AMATEUR'S EXPERIENCE

I BOUGHT my car, of standard make, early in July, 1909, and was proud of her beauty, finish and subtle strength.

After a couple of weeks of practice I found that there was something wrong with her pulsation. There seemed to be a sort of accentuation of her second sound, and wise ones told me I had a "knock." I knew that the knock did not belong there or the agency would have charged me full price for it under the head of "accessories," so I telephoned the agent and he kindly sent over a man (at my expense), who greatly to my admiration, immediately located it in the timer, took the offending member out and did things to it, put it back, ran her around town and said, "Knock's gone," and took the train for home.

A DIFFICULT DIAGNOSIS

The knock was not gone, however, and a wise friend said that it was due to the valves; that they needed grinding. So we ground the valves. Another said, "Carbon on the cylinders." The agent again said it was in the timer and put in a new one. In fact, one after another of the wise ones laid it to everything in, on or under the machine, but the tires and the top. The company was courteous and fair—pay freight and ship it to them, and they would put it in first-class shape. In the meantime a machinist and myself had taken her engine out, inspected every bearing, tried every nut, bolt, bar, pin, key and connection on her, without result. There was no play in cylinder, piston, rings, main-shaft, cam-shaft or anywhere else. She had been kept well oiled, was clean, and was made like a watch. We put her together again and I took her 105 miles to the nearest subagency, and found out that the timing gear was loose, but they did not have time to attend to the matter then. When I drove home and again personally inspected it, I found the timer beautifully made and keyed on with such strength that I looked for it to wear longer than any other part of the machine. I wrote the company and they suggested taking her down to the subagency again and leaving her there until they could thoroughly overhaul her. This I did, and after eight days I was notified that my car was now in first-class condition—"Call and get it." This was done without expense to me beyond that of driving her down and back and paying for some small new parts.

COMPLICATIONS

But that trip back! On the smooth pavements she ran well, but I thought a trifle stiff. At the first hill beyond the pavements I was surprised to find that I had to go into low gear, but thought, "She is stiff and will soon limber up;" but she did not seem to limber up as I went on and soon one of my soot-proof spark plugs began to foul, and then things were worse—no speed, no power and finally she came to a dead stop. Inspection showed every cupped recess around the spark-plugs full of oil, which had leaked up the threads, every porcelain covered with an oil film, drops of oil coming from some of the cap screws, and the fan belt off. All the plugs and three very loose sleeves or bushings of the plugs had to be tightened, and several of the cap-screws holding on the cylinder head likewise. It seems wonderful that I had power enough to run on the level. My sooted plug was not giving much trouble, and I concluded to run on a few miles before changing to a clean one. After a few miles there came suddenly from under the hood a din, which I knew must be a loose fan. My fan bracket was so loose that the fan blades were striking the radiator fins.

CURED

The boys had put it on to me good and hard, though I thought I had been fairly liberal. I had been nearly two hours going twenty miles, and though it was bitter cold, I was warm—hot—but my repairs were finished. I was 85 miles from home, and it was nearly one o'clock, yet in spite of stops, bad roads, and getting off the road a couple of times, I drew into my yard at 5 o'clock, and there was no knock. Where was it? Not even the machinists ever found out.

This was a good car of good material; the makers were fair and willing to do anything reasonable, and I would not hesitate to buy the same make again, but should a knock occur, I would ship it to the makers for them to make good.

W. W. Dees, Ellenville, N. Y.

SOME CAREFUL ANALYSES OF COST

COST OF MAINTAINING AN AUTOMOBILE

FREQUENTLY I am consulted on the possible cost of up-keep of a car as compared to a horse. A comparison of cost is rather a complex subject, as the conditions of the two methods of locomotion are so different. Any physician can drive a horse even though he possess no horse knowledge; and, when the driver is tired out and falls asleep on his way home, the chances for accident are slight, as the animal usually takes up the trail, but up to the present time no manufacturer of motor cars has designed a craft with anything but mechanical features, all of which must be guided by a watchful eye and a careful hand. Of course, the use of a car will bring the doctor home at a more wakeful hour, even doing the same amount of work.

In order to reach a fair comparison of up-keep between a car and a horse, the physician must either learn to take care of his car or have some one who will do it for him. This same obligation applies to a horse. The wage of a man to care for a car has a graduated scale of limitations; so has the wage-scale of a hostler; the extremes for both are practically the same. The motor car will cost just so much a mile for usage. The horse will cost so much a month, whether in or out of service. The weather has more limitations to the driving of a horse than to the driving of a car. Exceptionally high snow-drifts will create a condition in which a horse may travel better than a motor car, but these conditions in the temperate climates are rare. A very hot day or a very slippery one may cost the price of a horse either as a result of heat stroke or a broken leg. With a horse this condition means, "shoot it." With an automobile a similar break-down means, "fix it."

The average man buys a machine for business purposes, and uses it so successfully for that purpose that he has time to spare which he never knew of before. After returning home he very properly takes the family out for a little recreation. Now, would this same man expect to use a receipt for dues to a medical society as an admission card to a theater? Here is the point of comparison. He buys an article to be used as a part of his business which we will say takes him over an area of 50 miles a day—and this is a very liberal mileage allowance; and then he will add another 50 or 60 miles for pleasure and charge it up to business. Here is where a fairness of comparison is hard to compute. As one of the first physician motor drivers in America, I have reached conclusions which I embody in the following advice:

CONCLUSIONS

Buy the proper type of a motor car.
Use it in a sane manner.
Give it the proper grade and the proper amount of oil.
Keep all nuts and bolts tight.
Leave adjustments and the original design of the car as the maker made it.

You may know much more about his car after you have owned it for two months than he did when he built it, but you will find that it will run better with his crude construction than with your profound and scientific suggestions added. Remember that oil and grease are cheaper than bearings and easier to apply. Every factory will turn out now and then what is called in common parlance "a lemon:" Don't rebuild it. Buy from a responsible concern and let them do the rebuilding.

DO'S AND DONT'S

In surgery we all learn "do's" and "dont's." In motoring there are more "don'ts" than "do's." Don't, for the purpose of exercise or recreation, monkey with adjustments or nuts and bolts with which you are not familiar. Running the car through beautiful country is more exhilarating and beneficial.

TIRE SYMPTOMS AND TREATMENT

Probably the greatest annoyance and expense relative to operating a motor car is the tire problem, but with intelligent care even this can be minimized. Solid tires will not puncture or blow out, but their use will multiply all mechanical troubles, particularly to rear constructions; the absence of resiliency will eliminate ease of riding. A pneumatic tire which is kept properly inflated will, barring accidents, give satisfaction. Be sure that the tire is sufficiently large in diameter for the weight of the car and that it is always inflated when the car is under load. Look on all incisions, abrasions, and tumors as surgical conditions demanding immediate treatment. A tumor may be of a benign type but may at short notice become malignant.

SELECTION OF CAR

In selecting a car, we should be guided by the amount of money to be expended and the use to which the car should be put. Do not try to get a great big touring-car for the price of a small runabout. A second-hand car purchased from a reliable manufacturer with his guarantee will often give far better service than a new piece of cheap junk.

The geographic conditions of the country in which the car is to be operated is also to be taken into serious consideration. Ample power is most essential under all circumstances. Select a car delivering maximum horse-power to the back wheels regardless of bore and stroke of the motor, the weight of the car being as light as is consistent with strength. The smaller and lighter the car, all things being equal, the less the up-keep. A four-cylinder motor has all the advantages without any of the disadvantages of other types of motors. A quiet planetary system, one that does not simulate a thrashing-machine, is ideal for use in the city and in rolling country. It is easy to operate, especially in a place of emergency where it is necessary to come in reverse on the instant. It is economical. In a mountainous country a three-speed forward and reverse selective gear is the practical transmission. The intermediate gear saves motor trouble. Chain-drive cars are fast becoming obsolete for mechanical reasons.

These points should be sought for in a car made and sold by a manufacturer of financial responsibility who takes good care of his products and customers. The oily tongue of the smooth talking salesman makes a poor repair outfit for a broken crank-shaft.

The above conclusions are based on several years of experience and the clinical notes taken on my sixteen different cars (172).

My present car (115) has been driven 11,290 miles, about 3,200 of which was over the mountainous country of Pennsylvania. The repairs have been the grinding in of exhaust valves on two occasions and the relining of the service brake plus the proper and generous lubrication of all parts at all times and still the car is in daily service showing original power and speed.

S. LEON GANS, M.D., Philadelphia.

COMPARISON OF HORSE AND AUTOMOBILE NOT LOGICAL

DURING the past twelve months, since Feb. 27, 1909, I have used a runabout (144) weighing less than 1,300 pounds. The total cost to date, faithfully itemized, is $173.45—less than $15 per month. During that time I have hired a horse but once (in September), have driven the car practically every day, covering a total of over 5,000 miles, in all kinds of weather conditions including rain, snow, and zero weather.

One of the worst days of the season, a trip was made through a heavy snow-storm with four inches of snow on the unbeaten track, over roads that were far from level, on high speed over all grades but one, eight miles and back in an hour and fifty-five minutes; no thought of making quick time was in mind.

Comparison of the automobile with the horse and buggy is not altogether logical; no horse can do what the machine does. During the year 1908 my livery bill was $255; I hired a horse as a rule only when absolutely necessary, and covered a mile-

age amounting perhaps to one-sixth or one-eighth of that covered by the car this past year. Using a car strictly for business, I am sure that the cost of up-keep could be reduced by two-thirds, since the cost per month for the past four months, when no touring has been done, is $4.

The total cost per mile during the life of the car I have estimated at seven or eight cents; this includes first cost and up-keep; a rather high figure at first thought; it is not a difficult thing, however, to establish the fact that a horse in most cases will exceed this, taking into account first cost and maintenance.

From the standpoint of economy, therefore, the argument is decidedly against the horse, and I should regret very much to go back to that agent. Aside from the economy in dollars and cents, the wear and tear physically and time saved are not unimportant considerations; a night-visit is no longer a nightmare.

THE BEST MEANS OF RECREATION

To those to whom the automobile appeals, nothing surpasses it as a means of pleasure and recreation; there is a fascination in driving a car; one forgets cares and worries; it affords opportunity to explore new roads, enjoy new scenes, and experience a variety of pleasures, and if difficulties are met and emergencies arise now and then, they merely serve as part of one's motor education.

During the summer months the week always found us planning a trip for Sunday afternoon, and during the vacation period we went for all-day drives on Sunday, eating our lunch by the roadside, under the shade of a tree, unconscious of the existence of doorbell or telephone. Longer trips took us into other states; the most enjoyable one was through central Kentucky, where we visited Frankfort, Lexington, Georgetown and Paris, driving over the most delightful roads in the world, made of rolled stone and in many instances oiled for miles.

Fig. 25.—A winter scene in Indiana. Compare this with the picture on the opposite page. This car (144) is driven by Dr. C. R. Bird, Greensburg, Ind.

CLEANING CAR WITH WASTE INSTEAD OF WASHING

I have cared for my car for the most part myself. The sooner the owner acquaints himself with the mechanism of his car, the more certainly will he be able quickly to diagnose troubles, which is often necessarily done by process of exclusion. He should therefore keep in mind the most frequent sources of trouble. The necessity of frequently washing the car may be obviated by using waste, saturated with kerosene, being careful not to mar the paint; I know of one man who always has a clean, neat-looking car which has been washed but once in two years.

My car at first was not equipped with a magneto. I soon found the necessity of installing one, at a total cost of $62 (this is included in equipment, not up-keep). Most 1910 cars are equipped with this important adjunct; it is a *sine qua non*, and eliminates one of the most frequent sources of trouble. Late models are also equipped with improved oiling devices controlling the oil supply, thus obviating trouble from this source. The best remedy for carbonized motor is to close the valves on the two front cylinders, and when cool, to fill through priming-cups or plug-caps, with wood alcohol; then to close cups, and after four hours draw off with a grease gun, which has a slightly curved nozzle, and in the same way to fill the back cylinders, using the same alcohol, allowing motor to run idle after drawing off.

On one occasion, when I was at least one hundred miles from home, my motor began to knock when on level, in which case I used four ounces of wood alcohol in each cylinder, turned the crank over a few times, and after three-quarters of an hour proceeded. Whisky would answer and could be procured from most farmhouses. A small leak in the radiator may be temporarily stopped with a handful of corn-meal or flax-seed meal. The cylinders should be primed only with gasoline. The better way to start the motor in cold weather is to pour a tea-kettle of boiling water over the carburetor and intake-pipe. The most satisfactory oil (145) sells at 41 cents a gallon. Thirty by 3 tire chains may be made at home at a cost of $3.75, and require 23 feet of galvanized triumph chain, and 20 feet No. 3 German coil chain, six dozen "S" links, and four wire snaps.

THE CAR TO BUY

In purchasing a car give preference to four-cylinder motor 32-inch wheel, long wheel-base, sliding gear transmission and cone clutch. By all means specify a magneto, high tension type which eliminates vibrating coils. See also that there is improved oiling device.

There are one and two cylinder low-priced cars on the market which give fairly good service in good weather and on good roads. It is better to pay a little more, however, and get a car with more power than is actually needed. At $750 there are two cars in particular which I have in mind (146 and 147), which for every-day runabouts answer all practical requirements. Up to $1,050 one may have choice of a variety of cars which will give satisfactory service, and outclass the $3,000 car of six years ago.

Automobiles now are well standardized, and improvements are largely in refinements rather than in principle. Some one has said, "But, after all else has been said, one significant fact towers above all others—that at no time in the history of this wonderful industry has there been so much similarity between cars regardless of the price."

Eternal vigilance is the price of an ever-ready, perfect-running car.

CHARLES R. BIRD, M. D.,
Greensburg, Ind.

SIX YEARS' PRACTICE IN A LIGHT CAR

JUST how long an automobile will last under careful driving and proper handling has yet to be determined, for the worn-out parts can be replaced like the parts of a jack-knife as they give way and one can go right on using the original form indefinitely if one so chooses. After a certain time, however, the machine will be in the shop more than usual from old age, and parts will become crystalized and dangerous to use.

HOW LONG WILL IT LAST?

The life of an automobile is largely determined by the power of its engine. An engine of power too high for the machinery is like a hypertrophic heart; it cuts short the life of its carrier. The speed craze on the part of the driver, if indulged on our American roads, will in a very short time wreck the best of cars. Nothing can be more disgusting than to see a physician afflicted with the speed craze. A good test for sanity would be this: Do you enjoy riding in an automobile faster or slower than twenty miles an hour?

UP-KEEP OF HEAVY VERSUS LIGHT CAR

As to cost of up-keep, no one with experience in running cars will doubt for a moment, I think, the advantage of the light

car over the heavy one. Tires still continue to be the chief item of expense, and a heavy automobile will wear out its heavy tire long before a light car will wear out its light tire, and there is the extra cost of replacing the heavier tire besides. A physician does not need a heavy car for his work. If he wants it for other purposes, well and good.

In the summer of 1903 I purchased a curve-dash one-cylinder runabout (181) and used it constantly in my practice for six years. Last summer I sold the car and purchased a two-cylinder runabout (182), largely because my first one was out of style. My present car is rated at 12 horse-power and weighs about 1,200 pounds. It is somewhat heavier now, for I have had a canopy top put on it. This top changes the appearance of the car from that seen in the illustration to an automobile of the heavy type. The wind curtain in front protects me from the cutting breeze and side and back curtains with their celluloid windows will give a coupé effect and warm quarters. My engine drives the added top against our heaviest winds easily enough. I run my car now very much like an electric, which I consider the ideal pace for an automobile.

A large item in expense is saved by the owner diagnosing himself any trouble his car may have and requiring of the mechanic simply his time for the treatment. Any one who has a mechanical turn of mind will enjoy overlooking his car for any trouble that may be impending, and he will do this often; and he will enjoy driving his own car as well. He is not covered with the germs or odors of the horse when he uses an automobile in his practice.

EXPENSE LESS THAN BOARD OF HORSE

I kept an accurate account of my expenses for six years and found when I kept my car at home they were, all told, less than the mere board of a single horse in the livery stable, while the car would do the work of two horses. The day of the automobile for physicians is at hand and his car is the light one.

M. W. WARD, M.D.,
Woodland, Cal.

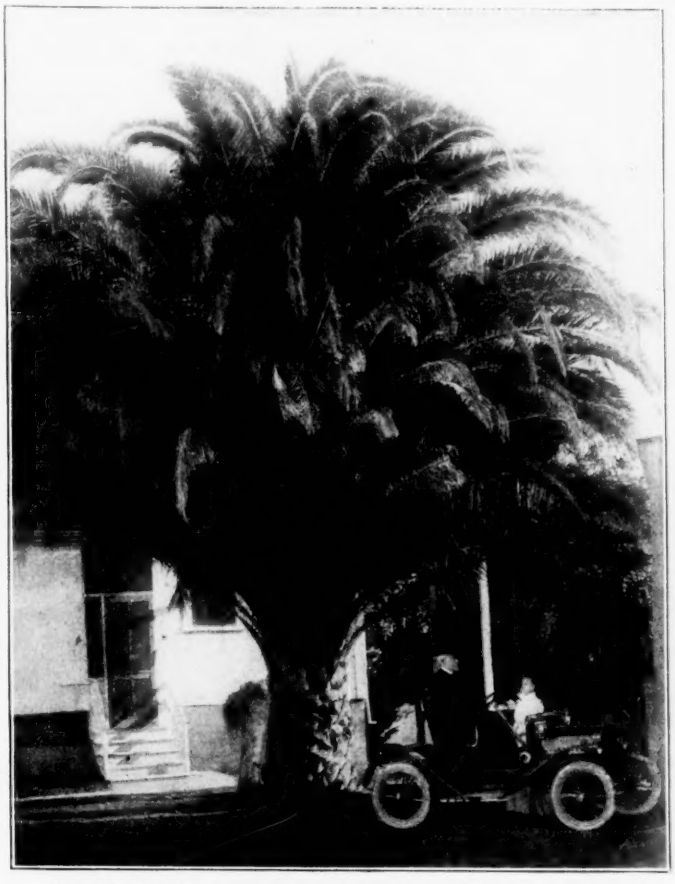


Fig. 26.—Winter scene in the Sacramento valley. Compare this with the picture on the opposite page. Dr. and Mrs. M. W. Ward ready to start from their garage, Woodland, Cal. (Auto 182.)

THE BETTER WAY

WHETHER a physician finds an automobile preferable to a horse seems no longer debatable. Changed conditions incident to the practice of medicine make it impracticable to try to do the work of a large practice without a machine. The older physician who would care for the second generation of patients finds them living so far from the parental roof that an automobile is indispensable. The young physician requires all the time available to keep pace with the progress of his art.

SAVES TIME AND HOLDS PATIENTS

The ability to hold patients who otherwise would have to be relinquished, the gain in availability to the patient at his home and punctuality in the observance of office hours are elements that cannot be computed. "The time on the street" represents the doctor's lost hours. It is reasonable to estimate that for the man who travels over a considerable territory the automobile saves three hours daily. And one medical man facetiously observes that we waste half of this time talking over the relative merits of our machines.

In addition to saving time and so increasing a doctor's earning power, the automobile has proved a boon to the medical man along other lines; the greater protection it affords from exposure, exhilaration in driving, and last but by no means least a hobby for his idle moments.

SELECTING A MACHINE

The selection of a machine is much simplified by considering the two possibilities. The product of a firm with a complete plant for producing all of the essential parts of an automobile, and having them perfectly standardized; or the product of a plant which is in reality an assembling depot for the parts secured from many makers who have thus no personal responsibility in the completed product.

Almost any machine will give the worth of the price paid; some will give a great deal more for the money invested. The poorest automobile of to-day is better than the best of a few years ago.

FACTORS LESSENING UP-KEEP

The expense of maintenance is largely a question of the driver and the caretaker. The private garage will greatly reduce the items. A few of the factors in lessening the up-keep are:

A good equipment.

A clean machine.

Good oil constantly where it should be.

Periodical search for needed repairs.

Prompt repairs.

Tires of ample size and properly inflated at all times. Power and speed suited to the work being done.

Buying supplies at the right prices, preferably in large quantities.

Avoidance of grand-stand starts and stops.

Remembering that short turns and curbstones shorten the life of the tires.

A private garage.

USE AND REPAIRS

During the past year I have driven my 30 horse-power car (108) 7,132 miles with only one puncture, one from a nail which plugged the hole so that I was able to drive home. My tires have averaged about 5,000 miles. The spark plugs have never been removed. No work has been done on the engine except to renew some of the hose on the cooling system.

A trip to Maine and back, via the White Mountains, without trouble with any part of the machine, demonstrated the possibility of service and pleasure to be had from an automobile.

My expense item has included the following items:

Gasoline	$79.74
Oil	5.29
Grease	3.70
Parts	2.94
Recharging storage batteries	3.00

B. FRANKLIN STAHL, M.D., Philadelphia.

THE COST DEPENDS ON THE OWNER

MY EARLIEST experience with horseless vehicles was with a tiny curved-dash, one-cylinder runabout (150), which, according to its makers, "cranks from the seat, is seen wherever you go and goes wherever you see them." Two years' use of this machine was expensive, if calculated on a basis of mileage traveled, and in a way justified the remark of a critic that "it cost one dollar for each mile you see it going." That was, however, a criticism not taken too seriously, for those were pioneer days in autoing; one must learn auto mechanism sooner or later, and it was no doubt better and cheaper to learn on the small car.

My next venture was a 4-cylinder air-cooled physician's runabout (151). In 1904 this car was reckoned a powerful, reliable, noiseless and handsome professional carriage. I ran it every day, winter and summer, for nearly five years, mostly over the well-paved level streets of the city. It is still in daily use, runs better, I believe, than when new, and should, with proper care, prove an efficient city runabout for another five or more years.

I have recently acquired another car (152) which I selected because this particular type of car appealed to me most in points of moderate weight, apparent perfection of construction, and because of the guaranty of the makers.

Fig. 27.—Dr. John F. Barnhill, Indianapolis, in his car (152), with Dr. Paul B. Coble, in front of Dr. Barnhill's residence.

But what interests physicians most, perhaps, is the truth about the cost of maintenance and operation of self-propelled vehicles. I have already stated that my first experience was expensive beyond reason, largely, no doubt, because I knew nothing of auto mechanism and because the earliest autos were experimental. The five years' operation of the second car was at an expense, excluding gasoline, oil, and tires, but including an annual painting, of not to exceed $500. During this same time oil, gasoline and tire replacement cost $650. The car itself cost $1,425, making a total of $2,575 expended in five years. Counting the old car still worth $300, this makes a total average expenditure for auto transportation of $455 per year.

In cost of auto maintenance there are two classes of owners who give widely different figures:

1. The one whose outlay is unreasonable and prohibitive. Such an owner, it will usually be found, has been a victim of the following errors: (a) buying a car without reference to the use to which it will commonly be put, in other words the use of a runabout for too much touring, or a touring car when runabout use is chiefly desired; (b) carelessness as to proper tire inflation, lubrication and use of anti-freeze solutions; (c) the owner's employment of a cheap and worthless chauffeur instead of driving the machine himself; (d) reckless driving, especially over roads never intended for an auto; (e) going to the repair shop for the nine-out-of-ten disorders which every owner should be capable of quickly adjusting himself.

2. The owner who is satisfied that the automobile is an economical proposition. Such an owner (a) has selected a car to meet the particular requirements to which he will put it, as well as one suitable to the environment as to the roads and hills; (b) drives the car himself, and with reasonable care, knowing that abuse and lack of proper attention to the machine are expensive faults; (c) studies auto mechanism to the end that he can diagnose his auto trouble at once and thus be able to correct the numerous little "tricks" which even the best cars play, and thus avoids the expensive repair man, except when some actual break of part has occurred; (d) uses the best and most suitable grades of oil and gasoline, and the best obtainable system of ignition, to the end that carbon in the engine is avoided, and the greatest possible amount of power and mileage may be obtained from the fuel consumed.

Any owner can, obviously, make either an expensive luxury of his automobile, or he can, if economy of operation is necessary or desirable on his part, cut the expense to a point that auto transportation becomes the cheapest available means of travel. But aside from cost, the pleasure derived from the rapid dash from place to place in a business way, or the invigorating spin to the country with one's family or friends after business hours, must be counted well worth while, even if the cost at times seems a little more than that paid by our grandfathers for the ox-team journey, or by ourselves a decade ago, behind a team of thoroughbreds.

I might also add to the above that I have maintained, for family use, a coupé electric car (153) for the past fifteen months. I keep this in my own garage, and charge from my own outfit installed for that purpose, and the expense of maintenance so far has not seemed unreasonable; and yet, when compared mile for mile with the gasoline machine my experience is that the electric costs twice as much as the gasoline conveyance. JOHN F. BARNHILL, M.D., Indianapolis.

MODERNIZING A 1908 AUTOMOBILE

EVERY mother admires her own babe most. Every automobile maker brands his product "best." Every auto owner thinks *his* particular machine is really "it." But we must admit that "there are others." There is no sense in my saying, just because I own a runabout (187) which I think is absolutely "O. K.," that it is the best machine in the market to-day. I realize that there are others just as good.

THE LIGHTING SYSTEM AND THE BATTERIES

But what concerns me just now has to do with this car. When I bought my machine in July, 1908, it was furnished with few accessories. I set about at once to put on the things that I liked best. Beginning with the lighting system, a headlight (188) was installed on a pivot bracket on the inner side of the dashboard so that I was able to swing the light around a corner, or up against a street sign. Many a night it has come in handy when looking for a particular house number. This headlight burns gas furnished in tanks (189). The side and tail oil lamps were exchanged for electric lamps run in connection with the storage battery. But one night I forgot to turn off the battery supplying the lights, and when I came out from seeing a patient there was not enough life in the battery to get me home; hence the change back to oil lamps.

Every one knows what troubles are caused by weak batteries. So disgusted was I that I took out the battery and the dry cells and put on a magneto (196). Since that time (July last) I have been entirely free from battery troubles. The machine starts on a quarter turn of the crank, and furnishes a strong rich spark.

THE TOOL-BOX, TRIMMINGS, ETC.

Those readers of this article who own machines like mine know what an ugly tool-box is provided. Mine soon warped and allowed the tools to get wet every time it rained. Since it occupied plenty of space I saw the possibilities. A carpenter made me a box sufficiently long and wide, put on top irons and placed it on the rear. Now, thank you, I have a rumble seat for a third passenger and a dry place for tools.

I never could understand why there is so much brass on autos. Nothing is so dirty as dirty brass. Rather than have a porter stand over it all the time, I had it all painted black. I have not regretted the change.

I have found that "spring-washers" will keep a bolt tight when nothing else will; that heavy grease in the differential will keep the rear wheels clean from spattering oil, because it does not liquefy like thin grease; that an extra inner tube and casing saves much irritation; that a priming cup on each cylinder-head will allow me to put gasoline directly into the cylinders to make the machine start more easily on cold days; that a few drops of kerosene oil dropped into each priming-cup will keep the cylinders clean; that one-third each of glycerin, wood alcohol and water stopped all freeze-ups, and that an extra two quarts of oil and gasoline, and an extra magneto belt and an oiler belt are most indispensable when I least think of them.

SERVICE AND EXPENSE

It is truly remarkable what punishment these small machines take and stand up well under it all. I went to Milwaukee from Evanston one Saturday forenoon, a distance of 90 miles, in six and one-half hours, on three gallons of gasoline. I have run the machine almost every day for eighteen months in all kinds of weather, and over all kinds of roads. It has carried me over 10,000 miles. The only thing that broke was a fender-iron, and that was replaced at a blacksmith shop for 75 cents.

It may be of interest to know what has been the expense to me since I bought it eighteen months ago. Well, in the first place, I keep the car in my own garage. It is 12 by 18 feet and 10 feet high, 2 by 4 uprights with 2 by 6 rafters. This is covered with corrugated sheet metal, painted and a sliding door hung on the alley side. The floor is of ashes. Since the item of garage expense is cut off, and since I buy my oil and gasoline at wholesale, you see that I am ahead of the game at the start. My whole automobile expense per month is $19.32.

I am in favor of the small runabout car for city use, because while allowing the maximum speed permitted, its up-keep expense is the minimum. Why drive a four-horse team about when a single horse will well do the work? I have found that a small car uses far less gasoline and oil and is the lightest on its tires. These three items being small, the cost of running the car is correspondingly small. I have added to the equipment as follows: wind-shield, top, rumble seat-tool box, magneto, carburetor (190) (haven't had to adjust it since it was put on in July, 1909), headlight (188), bigger gasoline tank, holding twelve gallons under the seat, small trap-door on top of the hood to allow immediate access to the priming cups, and a meter (191) to measure the miles.

Taken all in all, I venture to say that I have a car that compares well with many a larger and more expensive car from the standpoints of usage, expense and convenience.

As to using a horse, I would not ride behind one except to a funeral. JOHN A. KAPPELMAN, M.D., Evanston, Ill.

TROUT STREAMS AND HUNTING GROUNDS BROUGHT WITHIN AN HOUR OF THE CITY

UNTIL a year ago—that is for twenty years—I have driven horses. Then I sold my rig and bought a touring car (148). I would not return to the horse. A machine is cheaper to maintain, can be left without hitching, does not get frightened, is under perfect control, does not get sick and does not have to be exercised when not wanted for use. It is warmer in cold weather and vice versa. A greater extent of territory can be covered by the machine and, to me the greatest desideratum is, that one can get out of the city in an hour to the country, trout streams and hunting grounds, and enjoy a few hours of unalloyed bliss, or with his family ride over new routes and enjoy new scenes.

I take entire care of my car. I have taken it all to pieces and put it together again, and it runs perfectly. An automobilist should know his car as a driver does his horse. Some people never learn to drive a horse properly and some people can never learn a machine perfectly, those are the kickers.

As to expense, I am $25 to the good over the horse for one year and I have had many times the enjoyment and mileage.

A. S. BOLSTER, M.D., Worcester, Mass.

TAKE CARE OF YOUR AUTOMOBILE

IF YOU have owned and operated your own car for seven or eight years don't read this little article, for you know as much about it as I do. It is for the benefit of those who are new at it that I am writing these few words. One of my greatest enjoyments in motoring is in taking care of my own car (121), so I say, if you can possibly find the time, take care of your own machine. You will find it a pleasure and an economy at the same time. No matter how trustworthy he is, the other fellow is sure to be more lax than you yourself; he will throw away the extra gasoline rather than save it to be used for cleansing, or what not, he will throw the hood open with a bang instead of laying it back, and so forth.

Briefly, my advice is as follows: When you come in from a run, or at the end of the day, wipe off the body with some waste; this will do the varnish a world of good where frequent washing will do just as much harm. Open the hood and clean the inevitable grease, dust and dirt from the engine, fan, carburetor and piping. By doing this the power plant always looks neat and you will not ruin a clean shirt or coat in trying to make a hasty adjustment that may be necessary when starting or when on the road. Fill your water, oil and gas tanks, thus avoiding irritating, exasperating delays on the road which can only be charged to your own carelessness. See that the grease cups are filled, and where these are not provided put a few drops of oil, looking, meanwhile, for any loose nuts or bolts. Your machine can run without these, but you don't

Fig. 28.—A country pleasure ride in a touring car (148) driven by Dr. A. S. Bolster, Worcester, Mass.

want it to do so. Frequently, and I believe once a month is none too often, jack the car up and examine all four wheels for loose bearings. By doing this you may avoid large repair bills and enforced idleness for your car while a new set of bearings or even a new axle is being installed. Keep your tires hard. You will get more speed and more mileage for your trouble. These things attended to, your car is ready for starting at a moment's notice, at any time of day or night.

When on the road, follow the golden rule, "Do unto your car as you would have your car do by your pocketbook." Feel for the machine; it cannot feel for itself. Use common sense when starting and stopping, doing both gradually. Nothing will do the transmission so much harm as overlooking this easily followed suggestion. Go as fast as you may care to ride on a straight smooth road, but slow down for the many thank-you-ma'ams which invest city crossings, or a broken spring may be the penalty. Do not turn a corner at twenty miles an hour when you can do so at ten, besides, the latter is better for you (mentally, morally and legally) and for the frame of the machine. To get best results open and close the throttle gradually.

To conclude: If the engine worries along on only three cylinders, fix it immediately yourself, for you can do it just as well as to pay a repairman sixty cents an hour to tinker for you, and too often that is his stock in trade. Use deduction, the Sherlock Holmes kind, and you can diagnose and successfully treat your case nine times out of ten.

T. ALBERT PEPPARD, Minneapolis.

OPERATION OF FOUR-CYCLE AND TWO-CYCLE ENGINES

THE LIFE and the energy of the gasoline automobile lie in the engine or motor, located beneath the hood in front of the dash and connected to the rear wheels by transmission gears, rods and chains. To build a motor for this purpose with a maximum of efficiency, durability and economy, with a mimimum of mechanical detail, replacement and care has engrossed the attention and demanded the scrutiny and study of the world's engineers, and to this end, the four-cycle and two-cycle motors, varying considerably in their own individual arrangement, have been gradually developed and perfected.

ANALYSIS OF OPERATION

Within the cylinder of every gasoline engine four operations occur consecutively:

1. Intake of the charge.
2. Compression of the charge.
3. Explosion of the charge.
4. Removal of the burned gases or residue.

In the four-cycle type (Fig. 29, A) each of these operations is represented by a stroke of the piston. At the first or downward stroke, the vacuum produced draws the charge into the cylinder through the inlet valve, automatically opened at the time; following this the inlet valve closes and the piston returning, compresses the vaporized gasoline into approximately one-fourth the cylinder space. At the end of the second stroke explosion of the compressed gases takes place, and under the generated pressure the piston again descends, delivering the mechanical power. The exhaust valve, timed to open now, or at the beginning of the fourth and last stroke of the cycle, permits the emptying and cleansing of the cylinder during the entire ascent of the piston.

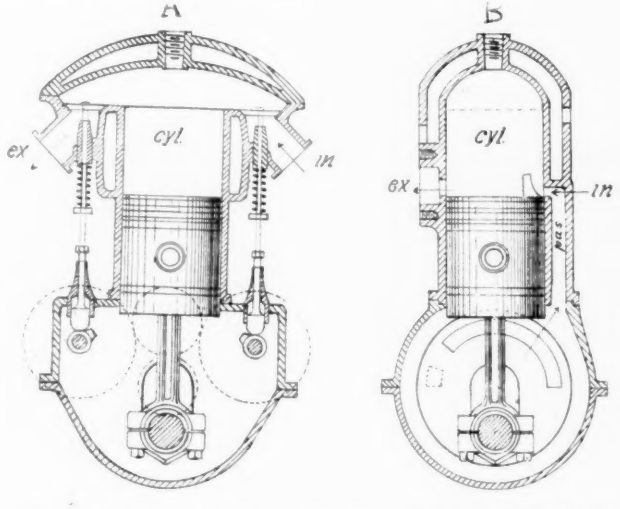


Fig. 29.—A, type of four-cycle construction; B, type of two-cycle construction. The details are explained in the article.

In the two-cycle motor, aspiration, compression, explosion and exhaust of the gases are obtained in only two strokes of the piston. This is made possible in that with every downward stroke a power impulse is given, and at the same time, through the piston's descent, precompression in the crank-case or in an annexed chamber established; while with every upward stroke, a fresh supply of gas from the carburetor is drawn into the crank-case and also compression of the charge within the cylinder accomplished. For this reason it is called the two-stroke-to-the-cycle engine, or for short the two-cycle engine.

In Fig. 29, B, the cylinder, "cyl." is represented as filled with a fresh charge; on ascent of the piston compression and ignition follow which drives the piston toward the bottom of the cylinder, and the burned gases begin to make their escape through the exhaust port, "ex." A moment later the piston, descending to its lowest level, uncovers the inlet port, "in," and admits the compression charge from the by-pass "pas" and the crank-box. The inrushing and expanding charge completes the scavenging of the cylinder, but is deflected in such a manner as to allow little or no mixing of the gases.

It is claimed then for the two-cycle engine that it will perform the four operations in one-half the time occupied by the four-cycle, that it does this without the intervention of some fifteen to eighteen parts of valve-lifting mechanism to the cylinder, and that with double the impulses smoothness in operation together with 50 to 60 per cent. of additional power is obtained.

I drive a runabout (197) with a two-cycle engine and find it satisfactory.

JAMES B. BAIRD, JR., M.D., Atlanta, Ga.

IT'S WORTH THE DIFFERENCE

REGARDING the use of the motor car by the physician my conclusions are based entirely on my own experience; that is, the experience of a country physician who is obliged in the course of a year to drive from 8,000 to 10,000 miles in a locality where good roads are the rule. I may state that my experience has been long and varied, for I have used a motor car since the early days of the automobile industry.

A PIONEER USER

I purchased my first car in 1899, and after more than ten years of constant use of motor cars in my business I am a firm believer in the automobile as a paying proposition for the country doctor. Does it cost more to operate and keep it in running order than it does one horse? It certainly does, but the comparison is unfair, the two are so entirely different.

SAVES MONEY BY SAVING TIME

A motor car will do the work of all the horses one man could find time to drive, and do it in one-half the time. If one's time is worth anything the motor car is certainly a great money-saver. Estimates of the comparative cost of keeping up autos and horses are often very inaccurate. We are too apt to base our opinion on the first year's use of the automobile, when repair and tire bills are generally small; if we do so the account will be favorable as compared with the expense of keeping horses. Repair bills will increase with the age of any car.

I am unable to state the actual cost of operating, repairing and depreciation in value of the various cars I have used in the past ten years. I once kept account of expenses for a short time, but it made me feel guilty. I felt as I would were I to keep account of the expense of being married. Supposing it does cost more to run the motor car than it does to drive horses: isn't it worth it? It permits you to spend more time at the office and catch an occasional stray dollar, that fracture case didn't go to some one else because you were not in—and it is such jolly fun to be bowling over the road on a hot, sultry day when you would feel sorry for the horses you were driving. All this is worth the difference in the expense.

HIS RECORD OF CARS

My first car was a steamer, one of the first ones sold by that concern (154), of narrow-gauge tread with a fire-tube boiler about as large as a good-sized teakettle. This little car would be considered a mere toy to-day; the burner had to be generated by a piece of bent gas-pipe heated in the kitchen stove; it reads like a joke now, but it wasn't in those days. It sometimes did run and it made more stir than any car I have owned since. It took a brave heart and a great deal of patience to go out on the road when every horse attempted to climb the nearest fence and every driver "cussed" that devil-wagon. My second car (155) was also a steamer and was quite an improvement over the first. My third car, a two-cylinder gasoline car (156), made the remarkable record of covering 52,000 miles in the six years of service. My present car (I never dreamed cars would be so perfect) is a four-cylinder 20-horse-power car (157) of the heavier type. It has covered 3,800 miles since August with virtually no trouble or expense, but next season there will probably be repair bills and new tires, but what of it? Were I obliged again to use horses in my business the year round I believe I would throw up my job.

E. WINDMUELLER, M.D., Woodstock, Ill.

RELIABILITY THE DESIDERATUM IN AN AUTO

SOME years ago I became convinced of the necessity of overcoming distance with decreased time. Still, the horse was at least sure of arriving at the destination, while machines, I had noticed, were often passed by the wayside by that faithful animal. I therefore began to look for a machine that could be depended on to reach the desired goal which would not be too expensive or too complicated and which I could understand and run, if necessary, myself.

I found what I sought after some search, and, seeing the simplicity and apparent practicability of the machine (201), I ordered one, which I have used for eighteen months at an average cost of less than $14 a month for oils, repairs, etc., with an average mileage of about forty miles per day. The past winter, because of its severity and the condition of the roads for weeks at a time, demonstrated most practically the absolute dependence which I could place in the machine. I can heartily recommend my car as being very practical for physicians, on all conditions of roads and under all circumstances.

J. LELAND BOOGHER, M.D., St. Louis.

THE ADVANTAGES AND DISADVANTAGES OF THE STEAM CAR

IN THE JOURNAL'S previous Automobile Numbers I have been surprised to find so little relative to the steam car, which seems to be giving good service in this section. After close observance of the types of cars, I purchased last summer a steam car (102) of 10 horse-power, which thus far has given me excellent satisfaction. One should, before purchasing any make of car, know the pro and con of the car.

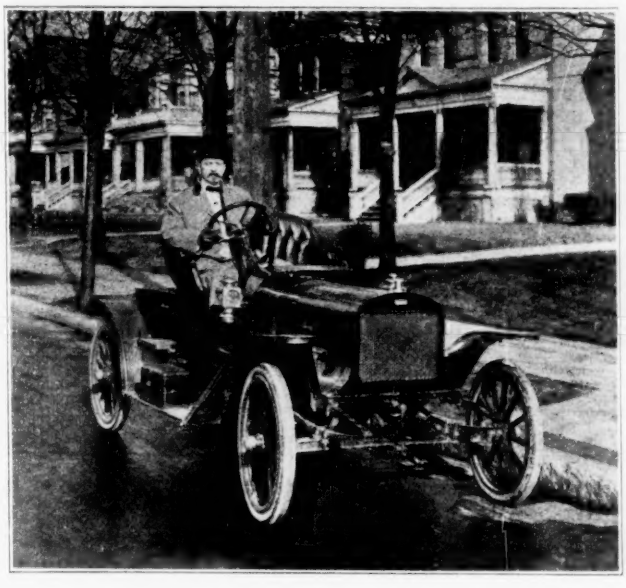


Fig. 30.—Dr. J. Leland Boogher, St. Louis, in his automobile (201).

TROUBLES

A troublesome feature of any make of car, which would apply to all steam cars, is the constant refilling of the water reservoir, under the seat, which has a capacity of thirty gallons, requiring for convenience, water and hose attachments, both in the garage and in front of the office and residence. A trip of ten to fifteen miles would consume about one-half the contents of the reservoir, depending of course on the condition of the roads and the number of hills encountered, thus making it unwise to attempt like trips without first having refilled the tank, so that for touring purposes I would not select a steam car, unless I was acquainted with conditions of water along the route. Granting the presence of watering troughs along public highways, much of the trouble would be averted, since there is hose and injector attachment, that one may easily refill the tank in a few minutes.

STEAM VERSUS GASOLINE CARS

I believe one has more trouble with a steam car than with a gasoline car, but not of such nature as to detain one long on the road. The gasoline consumption of the steam car is greater than that of the gasoline car, averaging from 7 to 9 miles to the gallon of gasoline, according to the condition of the roads. The steam car should have a warm garage in winter, if it is to be used during pleasant weather, but I have yet to see the auto that will combat snow-drifts and hills such as we have here.

GOOD POINTS OF STEAM CAR

Having briefly enumerated the troubles of my car, I can say in its favor, for endurance, durability and simplicity, it is, I believe, without a peer. Trouble is quickly located. Easy access to all parts: no cranking, wires, dry cells, carburetors, magnetos and the like which trouble some, hours, nay, days as I have seen. My car is noiseless in stopping, starting and passing fractious horses, with little or no odor of gasoline, making as little vibration as possible, which, to my mind, is a big saving on tire wear. As to the time required in steaming up, will say that I can, if need be, obtain sufficient steam in ten minutes to leave the garage. I find that more practical instruction could be embodied in the company's instruction-book, which is very meager in many respects. They stand ready, however, to repair any defect in their machines, and give prompt attention to all.

A DEPENDABLE CAR

To the physician, who needs a good dependable car that will stand much rough usage for his business, and who can overlook the troublesome features mentioned, I can conscientiously recommend my type of car. I shall continue to use a steam car until I am convinced of the superiority of the gasoline car.

A. H. HILL, M.D., Mifflinburg, Pa.

COST—CYLINDERS—COOLING

ON PLANNING to purchase a piano or a watch or a static machine for long and satisfactory service, do you not go to a reliable dealer of long standing, who sells a make that has been tried and tested, that has been on the market for years, and that is recommended by those competent to judge? On the other hand, if collections are bad and you want a piano merely to fill a vacant space in your parlor, or a timepiece merely to attach to a fob, or a static machine to stand in your office for the psychic effect it may produce on your patients, a cheap product may answer your purpose.

HOW MUCH DO YOU WISH TO INVEST?

With these comparisons and illustrations in mind how much can you afford to put into a motor car? Can you spend $8,000 or $10,000? If so, buy an imported car and you will have one into which has been put the best material and construction obtainable.

If you can spend, say, from $2,000 to $3,000 for a car, there are numerous American manufacturers who have been staking their reputation on the output of their factories for half a score or more of years. Their product has been improved from year to year until at the present day a mere novice with a dozen or more makes to choose from, and with closed eyes, would make no serious blunder.

DISCRIMINATION REQUIRED IN BUYING CHEAP CARS

In selecting a car at a price varying from $800 to $1,500 more discrimination must be used. Many cheap cars are at present on the market, to which the time test has not been successfully applied. There has always been and probably always will be a demand for a low-priced car, but thinking men are being gradually convinced that with labor and material at its present price, it is practically impossible to construct a satisfactory car at less than $800 or $900. If a mere toy is wanted, simply to stand in front of the doctor's door, and to take an occasional spin on an asphalt street, there are manufacturers who will supply the demand. But touring in comfort, which is what the doctor really needs, is out of the question with such a car. Of course, in all cases, much depends on what use the car is to be put to and the personal equation of the driver.

CYLINDERS

When it comes to cylinders, men seem prone to buy them on the same principle that the patient "took his pills." If one pill was to do him good, two would do him more good, and finally he thought the problem solved by taking the whole box. At present there are more four-cylinder cars in use than of all others put together. The increase is notable in the last two years. They have been recruited largely from the two-cylinder class. The whole thing is summed up by how much horse-power you want your car to have. The greatest number of models at both the New York shows this year were from 25 to 35 horse-power. Cars of this horse-power should be of the four-cylinder type, but for a good common-sense car, developing from 16 to 20 horse-power and a speed of twenty miles per hour, two cylinders are enough. Experience seems to have proved that for medium power cars, say under 20 horse-power, the two-cylinder opposed is the most practical. The power furnished by an engine cylinder is in direct proportion to its cubical capacity. One cylinder with a bore of five inches and a stroke of five inches will develop 8 to 10 horse-power, while two cylinders of same dimensions will develop 16 to 20 horse-power. A four-cylinder engine with no greater combined cubical capacity will develop no greater power than the two-cylinder engine. A four-cylinder engine increases the number of parts needlessly, complicates the mechanism and increases the cost. What is the use of using four horses when two will answer the purpose? Four, and even six-cylinder engines undoubtedly have their place; for instance, where more than twenty horse-power is required, or where a car is intended for the transportation of five or more persons at a high rate of speed.

But from the standpoint of the average motorist, not the faddist, this same average motorist who is the mainstay of the American automobile industry, the 20 horse-power two-cylinder car has an advantage in simplicity of construction over its many-cylindered brother.

COOLING

There seems to be a variety of opinion among the exponents respectively, of the air-cooled and water-cooled motor. It is a notable fact, however, that of all gas engines used for practical purposes by far the greater number are water-cooled. It is also a notable fact that no great race has ever been won by an air-cooled car.

Water cooling is more reliable than air cooling under all climatic conditions. In an air-cooled motor the temperature varies with that of the atmosphere and the cylinders may, at times, become dangerously hot. To cool sufficiently with air the cylinders must be comparatively small. The motor, of necessity, works at a higher temperature. For this reason the valves do not remain tight and need frequent regrinding.

Among the water coolers, the question as between pump or thermo-siphon circulation seems to be no nearer a definite answer than last year, for the number who use each system is practically the same. I am inclined to favor the thermo-siphon system of cooling and believe that cars using this system will increase from year to year.

IGNITION—SHAFT DRIVE—BRAKES

Magnetos are well to the front. On a large number of this year's models both batteries and magnetos are to be found. Even on the cheapest cars magnetos are to be found, there being more models selling below $1,000 which have magnetos than there are that do not. There is no car at present selling for more than $3,000 that is not equipped with magnetos. There seems to be an increase in popularity this year of the shaft-driven car, and also of the double-brakes on the rear hubs.

DAVID EDWARD HOAG, M.D., New York.

Surgeon for the Glidden Automobile Tours; Surgeon to the Brighton Beach Motor Racing Association.

Fig. 31.—A physician cooperating in giving an outing to the orphans, an annual feature in many cities. Dr. Charles L. Bonifield, president of the Cincinnati Automobile Club is at the wheel. In the left rear seat is Mr. Rogers, superintendent of the parks of Cincinnati. (Auto 106.)

AN ENJOYABLE AUTOMOBILE RIDE

FOR FIVE years I have been using automobiles. I have used, for business and for pleasure, everything from a single-cylinder to a six-cylinder machine (105); but thinking that technical subjects will be well cared for by others I have chosen quite a different experience to describe.

The automobilists of the United States are organized much after the manner of the physicians. There are local clubs, state clubs and the Three As, which, as a national organization, corresponds to the A. M. A.

The A. A. A. designates a day early in the summer as Orphans' Day. The local clubs are expected to give as many orphans as possible an automobile ride and outing on that day. On the third of last June the Automobile Club of Cincinnati gave such an outing to 1,100 orphans, inmates of the various institutions of this city. The children were gathered from the various institutions and brought to the heart of the city, where they were formed into a parade, the children each being given a small flag and the automobiles were suitably decorated. As president of the Cincinnati Automobile Club it was my pleasure to lead this parade, and I am sending a photograph of my car as it appeared.

We passed through a number of the main streets of the city, then took them through the suburbs on the hill tops, stopping at Burnet Woods, one of the city parks, for a band concert. We then proceeded to Chester Park, an amusement resort, where not only the gates, but all amusements on the grounds were open to the children free of charge. It was a sight to be remembered, to see these homeless children, many of them crippled and deformed, enjoying these amusements so novel to them. They were each served with a substantial luncheon and at sundown delivered to their institution without a single accident having occurred to mar the pleasures of the day.

I urge every doctor who reads this and who owns an automobile to join his local club and be an active participant in the next Orphans' Day Outing.

C. L. BONIFIELD, M.D., Cincinnati.

THE AUTOMOBILE ADDS TO EFFICIENCY IF NOT TO INCOME

MY FATHER and I are associated and do a large general practice in a community of more than 400,000. The roads are fair for the middle West but there is much to overcome before they could be considered good. The country is very hilly and many of the roads and especially the streets are precipitous. We cover a radius of from four to ten miles, and together our mileage is about 15,000. A chauffeur is a necessity. We have three machines, two single-cylinder cars (198) and a larger one (199), all water-cooled. The large touring-car for the family is not included in these esti-

mates. All cars are driven by gasoline and are equipped with extra large pneumatic tires. We have been driving machines for five years.

Previously we used horses. We always had four and sometimes six. Three buggies were required and $2,000 would probably cover investment in them. The three machines and their equipment may be conservatively estimated at $5,000. I have estimated the equine up-keep, including coachman, at $1,500, and that of the machines at $2,000.

In addition to the above expenses I estimate the depreciation of horse and buggy at 25 per cent. ($500), making total expenses $2,000, and that of the automobile 20 per cent. ($1,000), making that total $3,000. Very little of this expense or mileage is for pleasure. The income has at least increased sufficiently to care for the increased expense. Estimated in dollars and cents, I should say that there is greater expense, therefore greater risk, and no greater profits, and that therefore from a business standpoint machines may not pay. But their use adds so much to the doctor's efficiency, both with regard to better service to his patients and to time and opportunity to study and rest that machines more than pay. I should feel it almost retrogression if necessity required me to return to horses.

The choice of the car is one that requires much consideration. Such a choice demands adaptation to the requirements of the individual man. The cheapest car to maintain is undoubtedly the single-cylinder runabout. Our two of this variety (1908) have been run for five years and are doing yeoman service over our very hilly country. They will go anywhere any other car will go, but not so comfortably or so swiftly as some. In our practice they have been maintained at about $20 per month each, exclusive of the chauffeur's wages and depreciation and a few extras. Such a car can be bought and thoroughly equipped for a little under $1,000 and weighs 1,000 pounds equipped. On the other hand, nothing has ever given me more physical comfort and satisfaction than my large water-cooled car (1909) which weighs 2,450 pounds equipped. It has abundance of power and responds to the slightest touch of the throttle. Its up-keep, exclusive of depreciation and wages, is approximately $40 per month. Certainly, if one's practice will justify it, the latter is the greater satisfaction. On the other hand, in a level country with good roads the increased expense would be a good deal to pay for pleasure and satisfaction, because the increased efficiency alone would not justify the expenditure.

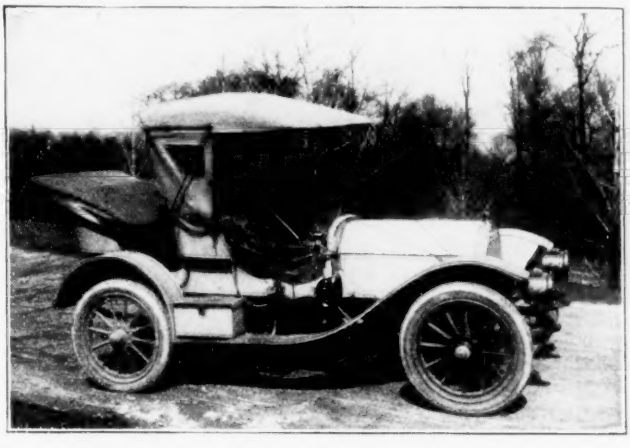


Fig. 32.—Automobile (199) described in accompanying article.

The greatest economy is effected by the use of large tires. I believe that each car should have one-third more tire capacity than the tire-makers require per wheel. One should always ascertain the weight of the car by running it on to good scales. Car manufacturers always underestimate weight. The large car (199), weighing 2,450 pounds, came equipped with 34 by 3½ tires. These are rated to carry 600 pounds per wheel, without load. Thus the four tires would be sufficient to carry 2,400 pounds. So equipped the tire was all shot to pieces in 1,500 miles. I changed my rims to carry 34 by 4½ tires. These are rated to carry 900 pounds per tire or 3,600 pounds. Since this change I have averaged much over 5,000 miles per tire, and had only five or six flat tires in that mileage; I can remember only four. The increased mileage and reduced expense was to be expected, but I was more pleased with the service than the economy. When one remembers that a car is practically as much out of commission while it has a flat tire as it is with a broken crank-shaft and that constant service is what the physician requires it is easy to understand the advantage of the large tires. The first cost of a 34 by 3½ tire is $48.66; the first cost of a 34 by 4½ tire is $74.59. These prices are taken from an old list but serve for comparative estimation. The first cost is less than double and the increased mileage is more than three times, while the difference in service is inestimable.

Another economy is a good chauffeur, whose employment leads to better service. If the doctor has the time he can soon learn all about the machine, and with a little attention each day can keep a cheap man on the job for rough work, but every machine must have careful and intelligent attention. Unintelligent meddling is worse than none. Better feed oil and gasoline and let her run than turn a hammer-mechanic loose on your car. I have known a man do more harm to a car with a hammer, a chisel and a large wrench in a few minutes than a month's usage would do.

It is better to carry as little extra weight as possible. For this reason the back seats of the larger car (199) are not made over-inviting and I do not carry a wind-shield. The latter is difficult to keep from rattling, and if one keeps down the noise of one's car one can the better detect loose connections, etc., before they have done any harm. It is necessary, however, to be protected from the weather. This large car has a top with a long low hood and a rubber apron which fits snugly around the steering wheel. In cold weather I have a large lap-robe over my knees. In the very bad weather and when driving very hard I wear goggles. These, the top, rubber apron, lap-robe and goggles furnish all the protection I have ever found necessary.

Large lamps are an economy because they keep one out of bad holes. I prefer to have them supplied from a tank rather than from a generator.

It has been my experience that the high-priced lubricating oils are not economical and that the cheaper gasoline, if well strained, answers admirably.

In addition to the usual tools I find that a good rope is most valuable to have in one's kit. This will either pull the other fellow or help one to be pulled. Also it may be tied around the tires and thus furnish traction when chains are not serviceable. It has helped me over very wet grass after a hard rain, out of muddy places and deep soft snow.

A good, intelligent horse is a most delightful companion and to me is preferable to a machine for pleasure; but time is the crying need and it is the time for which we Americans pay. The single-cylinder car is more time-saving than a horse and a four-cylinder car more efficient in this way than a single cylinder. One's need for a car depends on his need for time.

It is also true that the practice of a physician in general medicine is limited only by what he is able to do well during the busy season and an automobile well cared for reduces his limitations, thus allowing more work when practice is slack. If a physician could make arrangements to have the use of a machine during his busy season, and was willing to forego the pleasures of the machine in the summer, I am sure that the automobile would be a paying investment from the standpoint of the most exacting accountant. D.

Makes Your Hair Grow Long and Curly

The use of the car improves your health, steadies your nerves, expands your lungs, reddens the blood, increases appetite and makes life worth living. I haven't tried the aeroplane, but next to flying, autoing is the most exhilarating pleasure that I have known, and besides lightens the burdens of those dreadful night calls.

J. WILTON HOPE, Hampton, Va. (Auto 222).

AIRLESS AND CUSHION TIRES VS. SOLID AND PNEUMATIC

THE TIRE undoubtedly gives the physician greater trouble, and is the source of greater expense, than any other part of his automobile, and anything, therefore, which promises to lessen those evils is always of interest, both to the automobile manufacturer and the user.

Until recently there were only two kinds of tires, namely, solid and pneumatic; hence when we speak of "tire troubles" our minds naturally revert to those two types.

Diagnosing the troubles accompanying the pneumatic tire we find the cause of the trouble to be compressed air and insufficiency of ordinary cotton fabric to withstand the enormous internal air-pressure and the terrible knocks and strains occasioned by contact with uneven road surfaces. It follows, therefore, that a stronger and more durable fabric than the highest grade sea-island cotton must be provided in order to retain the great air pressure, or compressed air must be done away with entirely. Up to date nothing has been produced that will do the work of sea-island cotton, and the best authorities believe that nothing can ever be produced that will even do the work as well.

Quickly detachable and demountable rims have facilitated the operation of removing and applying tires, but they have not removed the cause, and pneumatic "tire troubles" are as frequent and almost as annoying as ever.

Diagnosing the troubles accompanying the perfectly solid tire, we find that the trouble, for the most part, manifests itself elsewhere than in the tire, just as a severe headache may be the result of a defect in the eyes; and on account of the rigidity of the tire, the jar and vibration are so severe as to injure the machine; and repair bills and loss of time and use of the machine while in the repair shop, make the use of perfectly solid tires a source of greater trouble and expense than pneumatics. The solid tire wears satisfactorily and cannot puncture or "blow out" like the pneumatic, but it is too hard and rigid.

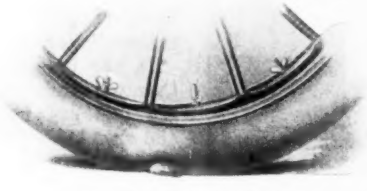


Fig. 33.—Pneumatic tire.

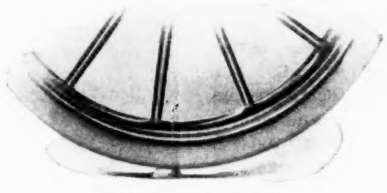


Fig. 34.—Solid tire.

A pneumatic tire absorbs obstructions by removal or displacement of the air at the point of contact between the tire and the obstruction and consequent absorption of the obstruction, and the tire passes over without a jar (Fig. 33). A solid tire rides up over the obstruction (Fig. 34); hence the jar or shock to the machine and occupant.

It follows, therefore, that the ideal tire must be one which will not depend on compressed air for its resiliency, but it must be softer and more elastic than the perfectly solid tire, while retaining its durability.

Taking up the problem, therefore, in a practical manner, we find that the resiliency must be at the point of contact between the tire and the ground so as to absorb the small obstructions that cause jar and vibration. This cannot be secured by springs in the spokes or cushion hubs, or the hundred and one other "patent medicines," but the absorbing medium must be right down at the ground, and if we are to do away with air, we must provide something else which can be displaced, and which is active, lively and resilient; there is only one known substance that can be utilized—rubber.

A fact of very great importance in this connection is that rubber is a non-compressible substance. Press a piece of rubber between your fingers, and it will "give" or compress only in proportion as it can expand elsewhere. You can displace rubber, but you cannot compress it, just as you can displace water by putting your finger into a glass filled with it, but you cannot compress it. If the piece of rubber were encased so that it could not expand, you could not compress it.

If, therefore, the rubber in a tire be so arranged as to permit it to "give" or "displace" all along the tread, when small road obstructions are encountered, you can produce the effect of a pneumatic tire when air is displaced. This is the result aimed at in the different types of "airless" and "cushion" tires, and the tire which is so constructed as best to produce this result is logically the best tire, for it will come nearest to producing the resiliency of the pneumatic, yet retaining the durability of the solid tire.

There are two types of these tires now on the market—one known as the "airless" tire, the other the "cushion" tire. The "airless" tire retains the shape of the pneumatic, and so far as external appearances go, cannot be distinguished from the standard pneumatic, and is designed to fit the standard clincher rims. This type of tire is composed of rubber and fabric and is molded in one operation; it is patterned after a cement bridge having a series of piers or columns of rubber, corresponding to the piers or columns of a bridge and a heavy tread of fabric and rubber corresponding to the road surface of the bridge. When the tire is completed it is just as homogeneous, or completely united, as the cement bridge, for the piers and tread are all molded and vulcanized together in one operation, and the piers will not separate from the tread any more than the columns or piers of the bridge will separate from the road surface. When the "airless" tire, therefore, strikes an obstruction the tire is pressed in at the point of contact, and the tread and pier bulge into the open spaces between the piers, and the obstruction is absorbed into the tire, hence the jar and vibration are practically eliminated. The fabric in its construction keeps the tire from stretching and becoming flabby and soft, and strengthens the piers or columns like guy wires. This type of tire can be retreaded.

The other type—the "cushion"—is made of rubber only, and contains no fabric in its makeup, and instead of having internal cells or open spaces, has a solid mass of rubber around the center of the wheel, but has open spaces on the outside designed to provide places for the rubber to "go" when an obstruction is encountered. This type of tire differs from the standard pneumatic in appearance and size, and cannot be retreaded.

JOHN A. MACMILLAN, Dayton, Ohio.

NOT A MONEY-SAVER, BUT THE PLEASURE COMPENSATES FOR THE EXPENSE

I AM one of the pioneer automobilists in the state. Since my first motor-car (202), I have had two runabouts (203, 204), and now have a little car (205) weighing 650 pounds. This is so new that I have not had time to try it out and therefore cannot speak either for or against it. My location is very mountainous, giving a car the hardest kind of a test. As a matter of economy, the automobile is not a money-saver, but the pleasure derived far more than overbalances this expense. The snow is deep here in the winter, at which time I use a horse almost exclusively. During the summer the horse is often not used for six weeks at a time. For different reasons I shall probably use the horse, on an average, twice a month. My choice is a light-weight, water-cooled car with pneumatic tires. The specifications of one which I have never used (206) come the nearest to being my ideal of a car of any in the market.

C. D. VOORHEES, M.D., Sonestown, Pa.

A COMPILATION OF AUTOMOBILE STATISTICS

Some Deductions About Automobiles from the Statements of Many Physician Drivers

With the idea of securing some information in a statistical form concerning automobiles of various types, and physicians' experiences therewith, THE JOURNAL printed* a list of questions to be answered voluntarily by readers. In all nearly 500 replies have been received, indeed they are still arriving, but it was necessary to draw the line when some 434 had been received to allow time for compilation.

For whatever value may be derived from these statistics, thanks are due to the physicians who replied, and we wish hereby to express our appreciation for their cooperation. We have made arrangements to send a copy of the Automobile Key,† giving the names of the motor-cars referred to in this number, to each one who filled out a blank and also to each of the authors of articles—without any further effort on their part.

Of the 434 replies, 96 concerned horses alone; a few, steam and electric cars, as well as motorcycles, railway gasoline velocipedes, etc., and the remainder, 324, concerned gasoline automobiles. The conclusions drawn from the figures are of necessity very general and are to be accepted with some qualifications according to the circumstances, but they are nevertheless interesting and worthy of perusal.

GASOLINE AUTOMOBILES

It will be readily agreed that it is unfair to compare an $800 runabout with a $3,000 limousine or even with a $1,750 touring car. The 324 gasoline cars were divided, therefore, into three classes, cars costing less than $1,000, cars costing $1,000 and up almost to $2,000, and cars costing $2,000 and upward. For the purposes of this summary they will be called Classes 1, 2 and 3, in the order named. In Class 1 were 116 cars, in Class 2 were 158 and in Class 3 were 50.

QUESTION 20: EFFECT ON INCOME

	Increased.	Decreased.	No Increase.	Not Answered.
Class one	69	1	35	11
Class two	82	1	56	19
Class three	27	0	19	4
Total	178	2	110	34

QUESTION 21: DOES IT PAY TO OWN A CAR?

	Yes.	No.
Class one	97	21
Class two	117	34
Class three	34	12
Total	248	67

* The questions were as follows:

1. Your name and address? 2. Size of town? 3. Yearly income?
4. Are your roads good, fair or poor? 5. Hilly or level?
6. Radius of territory you cover?
7. What is your yearly mileage? 8. Do you employ a chauffeur?
9. Coachman? 10. Name of car? 11. Number of passengers?
12. Kind of tires? 13. Gasoline, steam or electric?
14. How long have you used autos?
15. For horses: what is your total investment including vehicle and harness?
16. For auto: what is your total investment including equipment?
17. What does your expense average per year, in using horses, including feed, care, repairs, depreciation, etc.?
18. What does your expense average per year, in using an automobile, including operation (gasoline or electricity), tires, care, repairs, depreciation, etc.?
19. What per cent. of your mileage is for pleasure?
20. What effect has the owning of a car had on your income?
21. Aside from the rest and pleasure, do you think that it pays you to own a car?
22. As a business proposition, would you recommend, for one in your position, a low, medium or high priced car—a runabout or a touring car? 23. Remarks.

† A copy of this key will be sent to anyone who sends a self-addressed stamped envelope.

The affirmative answer to this question as indicated by the figures is very emphatic. Of course, as might be expected, these answers involve a variety of considerations. Some have said "Yes" with the purely financial aspect of the question in mind, while others have thought, not only of the increased number of patients they can see, but of the time saved and relief from the tedium of getting around, with more leisure to themselves, or more time for study. Still others have thought most, perhaps, of the increased joy of living through the exhilaration afforded. These latter have recognized that there are other things in life besides the dollar and that the word "pay" does not relate exclusively to money.

QUESTION 22: STYLE AND PRICE OF CAR PREFERRED

	Price			Style	
	Low.	Medium.	High.	Runabout.	Touring.
Class one	35	60	2	92	13
Class two	20	111	6	97	23
Class three	3	25	9	22	10
Total	58	196	17	211	46

The above figures mean that of those who now use low-priced cars 35 still recommend cars of that class, while 60 recommend cars of medium price, and 2 those of high price. Of those now running a medium-priced car 111 still recommend that sort of car, while 20 recommend a low-priced car and 6 a car of high price. In class three only 9 recommend the high-priced car, which they are now using; 25 of these recommend the medium-priced car, but only 3 a low-priced car.

As will be seen, the medium-priced runabout is vastly in the lead, as was probably to be expected.

The following tables give averages which will explain themselves:

QUESTION 16: AVERAGE COST OF MACHINE

Class one	$ 747.65
Class two	1,192.18
Class three	2,564.74

QUESTION 18: AVERAGE COST OF MAINTENANCE AND DEPRECIATION PER YEAR

Class one	$282.95
Class two	492.00
Class three	716.37

QUESTION 3: AVERAGE ANNUAL INCOME

Class one	$3,720.20
Class two	5,028.84
Class three	8,322.00

QUESTION 7: AVERAGE MILEAGE FOR ONE YEAR

Class one	5,004
Class two	5,397
Class three	7,933

QUESTION 19: PERCENTAGE OF MILEAGE FOR PLEASURE

Class one	18 per cent.
Class two	17 per cent.
Class three	22 per cent.

QUESTION 8: AS TO EMPLOYING A CHAUFFEUR

	No.	Yes.
Class one	11	5
Class two	146	9
Class three	40	7
Total	297	21

This last tabulation simply shows how great is the majority of owners who run their own cars.

It will be seen that while there is considerable difference between the prices of cars of the low and high classes, the average mileage of each class does not show a great difference, the high-priced class, being used more for touring purposes,

having a little the best of it; but at the same time the high-class car shows a very considerable advance in depreciation and cost of maintenance over the cars of the other classes, without having to its credit a corresponding increase in the mileage. The percentages of mileage for pleasure are strikingly close together in the various classes.

The cost of upkeep of cars run by their owners, as shown in the answers, varies widely even with the same class of cars with similar roads and equal mileage. Some of this may of course be due to difference in make of car, but the impression received is that most of it is due to personal equation. Leaving out of consideration the matter of doing his own repairs, it seems that the man who is careful, who has a good mechanical sense, who can diagnose an ailment in its incipiency and is always looking for it, runs his car at such an advantage that the expense is really nominal, and in striking contrast with a man of the other sort.

STATISTICS CONCERNING THE HORSE

Of 96 replies received concerning the horse, the average cost of the outfit was $486.98; the average annual cost of maintenance, repairs to rigs, etc., was $356.85. In some instances more than one horse was used. The average annual mileage for the horses was 2,680.

The cost of the driving outfit is shown to be not much more than half the cost of the average machine in Class 1, but the average cost of maintenance is considerably more than that of cars of Class 1, yet somewhat less than that of Class 2, while the mileage was about half that of cars of Classes 1 and 2. Taking it altogether, the horse seems to be decidedly losing favor and bids fair soon to be out of the running. In other words, to use a racing term, he is not one, two, three in the race.

THE DOCTOR'S RUNABOUT

THE exactions which, in times past, made the doctor's horse scarcely less well known and respected in his community than his master, are now laid on the doctor's automobile. In the first place, his car must be dependable. It must be ready to go at all times, day or night, rain or shine, hot or cold, and over good roads or bad, and with no preliminary fussing to soil the hands or to consume time. After it is started it must get there, and that without delay. This, also, takes in the item of speed and power.

There are many cars that will answer for this much, and in individual cases any one of these will answer the purpose for a doctor's car. But the average doctor with the average income demands more than this. For such a one, the car must be an economical one. That is, it must be of moderate purchase price and low maintenance cost.

Again, it must be one that the doctor can care for himself without the aid of a chauffeur. This means simplicity as well as reliability, and once more, it must be one that will run through the whole gamut of seasons without the necessity for continual adjustment to suit the changes of temperature or humidity, and to meet the requirements of many doctors, it must be content with an unheated stable.

Is there such a car? From the experience of a year and a half, I think I can honestly affirm that there is, and that I am driving it.

In the first place, my car (246) is of moderate purchase price, costing with full equipment of top, lamps, headlights, speedometer, etc., less than $600. This brings it within the reach of many who would otherwise be compelled to put up with the horse.

It is not a touring car, and never pretended to be one, but as a dependable runabout it has been in my hands a decided success. It is well proportioned, neat in appearance and runs almost without noise.

It has the most simple engine of which I can conceive. There is the one cylinder, water-jacketed and cooled by a thermo-syphon radiator which has been all-sufficient in the hottest weather and has given me no trouble even on long summer runs.

The rapidity of the explosion (2200 R. P. M.) avoids that chug-chug of most one-cylinder cars and by a counter-balance in the crank case, the vibration is so thoroughly absorbed as to be *nil*, even at high speeds.

The top of the cylinder screws out, exposing the piston which can be cleaned or removed through it without dismantling the engine. Two other caps unscrew, exposing the valves which can be removed or ground without any effort. The spark plug is over the intake valve and never accumulates enough soot to rub off on one's fingers.

The timing apparatus and contact maker are simplicity itself. Everything is made adjustable for taking up wear or replacing broken parts, and I have been told by many an amazed spectator, "Any fool could run that." The gasoline tank for over five gallons and the oil tank are both under the hood where, being warmed by the engine, their contents give increased efficiency.

The weight of the car is about 1,000 pounds. The 28x3 tires stand up well under it and are not as expensive to replace when worn out as larger ones. The springs are an innovation. The car is suspended from a spiral spring placed at each corner and is steadied by four shock absorbers. There is no "broken spring" difficulty and the riding is easier than in any other car of its size.

A double chain drive gives the advantage of economy of power with no troubles of alignment common to shaft driven cars, while the two short chains cause almost no noise and are cheaply and easily repaired or replaced when worn out.

People marvel to see what I can do with my car. One man thought I was lying when I told him, but after accepting my invitation for a demonstration ride, went immediately to the shop and ordered one for himself and he has not yet confessed any disappointment in his choice of a car.

I take care of my car myself which usually consists only in filling up my oil and gasoline tanks. Once a week I fill my grease cups, oil my transmission and clean my chains unless hard driving on muddy roads compel more frequent care. I keep my car in an unheated barn and have my radiator filled with a 50 per cent. solution of wood alcohol as an antifreeze.

At first, I had trouble with my cylinder oil becoming thick from the cold, but this winter I have been using a very satisfactory oil which will remain fluid even below zero.

The only time I was stopped by the cold was when the thermometer stood at 27 degrees below zero and my dry cells froze. I borrowed a storage battery and finished my work without mishap. Let me say here, however, that I doubt if there is a car made, at least a pneumatic tired one, that will meet the winter demands of a country practice—for such, the horse still reigns supreme.

I must say in truth, that at times I could use more power, but so say all the auto owners I have ever met—regardless of the power they have. I have had troubles too, but they have been neither greatly annoying nor expensive. The upkeep cost for double the mileage my horse gave me has been well under the cost of the "nag." I am well content with my little runabout and I think it is about the perfect car for the doctor's use. H. O. SKINNER, M.D., St. Paul, Minn.

Beware the Garage Man!

Let me whisper this in your ear: 'Ware the garage! The average garage proprietor seems to think that a man who is able to own a car is his lawful prey, and the old joke anent the plumber is not in it with the garage man. He will tighten up a nut or two, crawl under your car, grunt around awhile and come out shaking his head and tell you it is all wrong. He keeps it until you are about ready to explode with wrath and then runs it around to your office. At the end of a month, with a sublime nerve, he will present a bill for "Work on car, $10." But this is not all. While he has the car he will run all of your oil out of the reservoir and all the gasoline out of the tank and tell you he had to refill these receptacles, having this also charged up on the bill. And the crux of the whole matter is that if you are in a place with one garage you will have to swallow your indignation and pay up, looking and acting all the time as if he were doing you a great favor. The moral of all this is, learn not to patronize the garage—except when you must.

J. ALEX MELDAU, Newberry, S. C. (Auto 232).

A GROUP OF BRIEF REMARKS

Incurable Infection

A man once infected with the automobile virus remains a maniac throughout the remainder of his life unless maimed or rendered an imbecile by the machine (211).

P. M. JEWELL, Decorah, Iowa.

The Country Doctor Needs Both

In my opinion the country doctor needs a good horse and light buggy and a good motor car (212). Then he is equipped for all seasons. The difference in the keeping expense of the horse and the car is very little by actual count.

O. C. DIEHL, Diller, Neb.

Fine for Night Work

The advantage of the car over a horse in night work is particularly noticeable, especially if you have a sleepy boy or have to hitch your own horse. Without making an effort to economize time, I have made a trip of five miles in the country in 50 minutes from the time I was called from my bed until I returned to it. H. C. M., Ohio (237).

Fix Your Own Car

It was pretty expensive to take care of my own car (231) the first three months, but since then my expenses have been less than half what they used to be when I had a horse and had to keep a coachman. Besides, I am independent, have more time for study and for pleasure trips and see more of the country than I could have done for three times the expense with a horse. H. S., Connecticut.

The Horse for Luxury, the Motor for Business

I consider a horse a luxury that I cannot afford. In my opinion there is no comparison between the motor and the horse-drawn wagon. If you are rich and like a horse, keep it for pleasure, but if you are trying to earn a living in the practice of medicine, it is mental, physical and financial suicide not to have a motor car (241).

J. SWETT, New Hartford, Conn.

The Car He Needs

If I could find a car with a 60-inch tread and 36- to 38-inch wheels, solid rubber tires, 25 h. p., chain-drive from each hind wheel, with a maximum speed of 25 miles an hour and made and standardized by a reliable company, I should exchange my car (214) for it. Such a machine should weigh about 1,500 pounds, with the greater portion of the weight over the rear wheels. J. H. PAXTON, Elkhart, Texas.

How It Pays

The value of plenty of rest and pleasure for the busy doctor cannot be stated in dollars and cents, as above all men we need it. But it is far cheaper than horses. Thus you see it don't take much of a head to figure it out. If it is cheaper than what you are using (the horse), and at the same time increases your income, it can't help but pay, and at the same time it turns work into pleasure.

W. C. NOLTE, Dazey, N. Dak. (Auto 207).

The Strenuous Life

A car is not a money-making proposition for a doctor; at least not in this territory. The people do not call you because you have a machine and can get there quickly, except in rare cases. In fact, I think some farmers are fearful lest the bill be in proportion to the ornate equipage of the vender of powders and pills, and really prefer to stick to the plodding old fellow who takes lots of time to talk their kind of shop, and jogs back and forth in the farmer's own rig, perhaps, and is really more in their class. The doctor with an auto is not one of the people as much as he used to be. He has not the time. His is a strenuous life. He covers big territory in record time and has more leisure for pleasure trips and for home life. In joining the Honk! Honk! class he has put himself in another plane. Some look after him with admiration and others with jealousy and criticism. But the earnest, energetic medical man of to-day does not care. In time he will overcome prejudice, as he is usually a careful driver and not stingy when he sees a chance to give some wayfarer a lift. He has at last found a legitimate relaxation that combines his business with his pleasure and adds immensely to his sum total of happiness, and this includes the whole family.

R. J. SEWALL, Deerwood, Minn. (Auto 213).

He Has Not Found It

After all has been said on the subject, I have come to the conclusion that the all-round country practitioner's car is yet to be built. E. D. SPEAR, Nome, N. Dak. (Auto 234).

Advantages of a Good Car

The great advantage of owning a good car (233) is in the saving of time for more rest, more study, and in relieving the strain of hurry to accomplish the day's work.

E. W. MITCHELL, Cincinnati.

Are You a Mechanic?

If a man is a natural mechanic, have a good machine, not too light and not less than 30 h. p. (229). If not a mechanic and you can't afford a chauffeur, don't have an auto.

W. E. ROWE, Grand Rapids, Mich.

The Way to Get There

Any number of horses could not take a physician to a serious case of postpartum hemorrhage over nine miles away in twenty minutes. That is what my machine (216) did for me. J. S. C., Mississippi.

Depreciation Greatest First Year

It is unfair to the auto proposition to give figures for one year's time, for the depreciation the first year is much greater than for the following three or four years.

C. B. WELTON, Peoria, Ill. (Auto 228).

Has Made Him an Engineer

I have never lost two hours a year with my car (217). It has made me an engineer. I have never had the motor where I could not make it go, and I have never been hauled in.

J. D. HULLINGER, Clinton, Iowa.

Costs Less and Saves Time

My working time has been decreased, I save time on my consultation trips, have more pleasure and enjoyment than with a horse, and it does not cost as much as the two horses I formerly kept. A. R. ALLEN, Carlisle, Pa. (Auto 226).

Air Cooling

In one instance (236), at least, air cooling has been brought to perfection, and with that attained I cannot conceive how anybody could want a water-cooled car. If a business man can afford to own a machine for pleasure, I can't see why a physician can't afford one for business and pleasure both.

W. D. SCHWARTZ, Portland, Ind.

Back to the Horse

A good driving team is always ready, and while progress is slower, it is surer. Hence, for one whose income is not over $3,500 to $4,000 per year, the horse and not the auto is the proper, sensible, economical mode of locomotion. This is my final conclusion after two years' experience with three types of automobiles.

J. A. PRINGLE, Bagley, Iowa.

Manufacturers: Please Listen

My kick is that manufacturers of automobiles are not particular enough to send out specific instructions as to how to oil, maintain and operate each individual car, so that every owner could become familiar with his own car. Our great need is for automatic oilers, with oiling places made accessible, self-starting device, stronger magneto and specific explanation of internal mechanism.

F. J. ROSENBURG, Lexington, Neb. (Auto 235).

Handle Your Own Car

If one has any mechanical ingenuity it pays to handle and care for one's own machine (221). There is an interest and a fascination in it that will more than pay for the grime and sweat, beside the security you will feel in knowing you will be able to get in many times where the fellow who depends on the garage would have to phone in for some one to come and locate perhaps a trivial defect.

C. L. S., Kansas

FAVORABLE EXPERIENCE WITH A ONE-CYLINDER CAR

MY CAR is a 1910 model, one-cylinder runabout (140), with non-pneumatic tires, and I am sure from my own experience that it will take one or two passengers anywhere that any car could take them regardless of size, price or power. The first car I owned was a 1907 stanhope (209), which gave me good service, but the inacessibility of the motor, which was under the body, a wrong idea altogether, was a drawback in many ways too numerous to mention. The car I am using now has the motor easily accessible, which is a great consideration. A single cylinder means reduction in a number of parts, less expense and less trouble. It also means longer life. My old car is as good as ever so far as the motor is concerned and it has only one cylinder. The argument that some speak of in favor of a two or a four-cylinder engine, that should one go wrong the rest will bring you home, is absurd. What would you say to a man who would sell you a horse and tell you to take another horse along for fear one might die, then you would have a horse to get home with? My car makes no more noise than many of the two or four cylinders. I could break the speed law and get arrested any old time. What then is the use in keeping two or four horses to do your work if one horse will do it? Great motor power in a heavy car is like having money wasted in stock which does not pay your dividends. It is there but you do not get the use of it—that is, you can't realize any more on it than you would if you only had half or a fourth the amount of money invested. A heavy automobile has exactly the same effect. The fewer parts the less likelihood there is that something will go wrong. The springs on this car are easier than on any other car made because they are coil springs. I am sure on the points of first cost, which is $485, economy, reliability, accessibility, easy riding, and in every other way for a one or a two passenger car this car is away ahead of all the others. I am greatly pleased with the tires (210) which I wish more physicians knew about. There is no question but that they ride just as easy as do the pneumatic, at least they do on this car. The springs may have something to do with it, but I surely would not go back to pneumatics again. They are as resilient as a pneumatic tire and are neither solid nor pneumatic, require no pumping and cannot puncture nor blow out, which to a physician means something.

J. E. ASAY, M.D., Rock Island, Ill.

A COMBINATION TRANSFORMABLE RIG

A FEW years ago I drove fine horses and loved them. When the auto epidemic raged in my neighborhood I fought it off until I was practically alone. I so loved my beautiful bays. When I finally decided to get an auto, contrary to my usual way of doing things, I selected the simplest and most inexpensive machine (215) built, possibly as an apology to my poor horses.

I have since learned that the only mistake I made was that I should have bought two. It was so simple my wife learned to run it. I have driven my machine thousands of miles since I have had it, all over the country, day and night, summer and winter, on all kinds of roads, and what do you think? No more horses for me; they eat too much, they go too slowly, they require too much care. My auto costs me less, is always outside the door waiting for me, and is as much a necessity as my telephone.

It is equipped with two sets of wheels, one with pneumatic tires and the other with solid tires, so I am ready for all seasons of the year and never have to bother with horses. It is a classy runabout one minute and converted into a four-passenger rig the next minute.

J. H. VEATCH, M.D., Marine, Ill.

A Terse Comparison

Costs less than one horse and does more work than three, and is much easier on the doctor.

C. H. MILLER, Chicago (Auto 230).

Air Versus Water

For this climate I can see no particular advantage in air cooling. The antifreezing solutions have given me satisfaction, and the water-cooled engines run more smoothly and require less adjustment.

C. S. KALB, Spokane, Wash. (Auto 218).

The Simple Car

The more simple and less complicated a car, the better. A first-class, medium weight, medium priced car, given reasonable care, will not only stand a wonderful amount of hard work on all kinds of roads and in all kinds of weather, but a wonderful amount of abuse as well.

K. W. B., Nebraska (Auto 224).

Just Like Fishermen

The reason some auto owners have more expense than others is the overcharging, false representation and grafting of garage owners. There is not one automobile owner in a hundred who will state his true expense. It seems that a truthful automobile owner is a rarity.

W. A. STOECKS, Davenport, Iowa (Auto 223).

Get a Second-Hand Car to Start With

To the man in my position I would say, get a good second hand car, as you must learn to run and care for it yourself, and you can get this knowledge most cheaply in this way. Don't expect too much at first. You will have to give a few public demonstrations on the main street, but if your religion will stand this you can be sure it is of the proper brand and you will soon learn to have things in order before starting. After a year's experience you will be in position to buy a new car and get unbounded satisfaction out of it.

C. H. FOX, Clarks, Neb. (Auto 225).

Does Driving a Car Become Automatic?

A point which seems not to have been raised in any of the answers received by THE JOURNAL is discussed *pro* and *con* by correspondents in the *British Medical Journal* of recent date.

Dr. Allan Wilson writes that a motor car for a medical man "can scarcely be considered a boon or a blessing to his patients because, when he is going from house to house on his daily rounds, his thoughts and attention, that should be occupied with the contemplation of the nature and treatment of the diseases which come under his notice, are, by necessity, directed to the steering of his car."

Dr. Thomas Fentem replies by saying: "My experience is that one arrives at the patient's bedside much more alert and less jaded after a long round than with horses; and, getting over the ground more quickly, one reaches home earlier than one could with horses. One therefore has more leisure to give to the consideration of the patients' cases in the quiet of one's study and among one's books, and that surely is better than trying to do this sitting beside a coachman, even if one's thoughts are stimulated by such accompaniments as blinding snowstorms, driving rain, gales of wind, and such like.

"The driving of a car becomes after a short time largely automatic, and this applies, perhaps, most of all to the steering, the task which Dr. Wilson appears to think requires such deep mental application as to banish all else from one's mind."

Dr. F. L. Nicholls writes: "One would almost feel inclined to think that Dr. Wilson had made one or two attempts to handle the ribbons or drive a motor and found it too much for his nerves; and if such is the case he is certainly a wise man to depend on his coachman to see him safely on his rounds, but I cannot allow the statement that a driver's whole attention must be given to steering to avoid accidents to pass without protest. If such was the case I pity the poor driver, for at the end of a week his nerves would be in such a state that he would be good for nothing but darning stockings or doing patchwork, even if he was lucky enough to keep out of an asylum.

"Dr. Wilson does not appear to know that all these actions to an experienced and skilled man are almost entirely automatic. The eye and hand do the work, leaving the brain free for the consideration of any matter its owner may desire. I do not speak without experience, for I have for over forty years had the handling of horses, including the breaking-in of young ones, and for over five years I have driven a motor, and I can assure Dr. Wilson that the only time when my brain is 'jumpy' is when I have relinquished the reins or wheel into some other person's hands. I am then anything but at ease; but directly I have again resumed my usual and proper place my brain is at ease and ready for the consideration of the most serious subjects connected with my practice."